



**LG**

Life's Good

# OWNER'S MANUAL PLASMA TV

Please read this manual carefully before operating the set and retain it for future reference.

50PT490E

# LICENSES

Supported licenses may differ by model. For more information about licenses, visit [www.lg.com](http://www.lg.com).



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## NOTE

- Image shown may differ from your TV.
- Your TV's OSD (On Screen Display) may differ slightly from that shown in this manual.

# IMPORTANT SAFETY INSTRUCTIONS

Always comply with the following precautions to avoid dangerous situations and ensure peak performance of your product.



## WARNING / CAUTION

RISK OF ELECTRIC SHOCK  
DO NOT OPEN



TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

## WARNING/CAUTION

- TO REDUCE THE RISK OF FIRE AND ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

Read these instructions.  
Keep these instructions.  
Heed all warning.  
Follow all instruction.



- Do not use this apparatus near water.



- Clean only with dry cloth.



- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.



- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet. (Can differ by country)



- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.



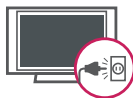
- Only use attachments/accessories specified by the manufacturer.



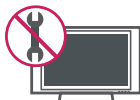
- Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- Unplug this apparatus during lightning storms or when unused for long periods of time.



- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



- Never touch this apparatus or antenna during a thunder or lightning storm.
- When mounting a TV on the wall, make sure not to install the TV by hanging the power and signal cables on the back of the TV.

- Do not allow an impact shock or any objects to fall into the product, and do not drop anything onto the screen.

• **CAUTION concerning the Power Cord:**

It is recommended that appliances be placed upon a dedicated circuit; that is, a single outlet circuit which powers only that appliance and has no additional outlets or branch circuits. Check the specification page of this owner's manual to be certain. Do not connect too many appliances to the same AC power outlet as this could result in fire or electric shock. Do not overload wall outlets. Overloaded wall outlets, loose or damaged wall outlets, extension cords, frayed power cords, or damaged or cracked wire insulation are dangerous. Any of these conditions could result in electric shock or fire. Periodically examine the cord of your appliance, and if its appearance indicates damage or deterioration, unplug it, discontinue use of the appliance, and have the cord replaced with an exact replacement part by an authorized service. Protect the power cord from physical or mechanical abuse, such as being twisted, kinked, pinched, closed in a door, or walked upon. Pay particular attention to plugs, wall outlets, and the point where the cord exits the appliance. Do not move the TV with the power cord plugged in. Do not use a damaged or loose power cord. Be sure to grasp the plug when unplugging the power cord. Do not pull on the power cord to unplug the TV.



- **Warning** - To reduce the risk of fire or electrical shock, do not expose this product to rain, moisture or other liquids. Do not touch the TV with wet hands. Do not install this product near flammable objects such as gasoline or candles, or expose the TV to direct air conditioning.



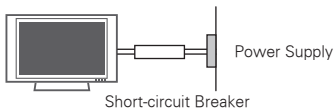


- Do not expose to dripping or splashing and do not place objects filled with liquids, such as vases, cups, etc. on or over the apparatus (e.g. on shelves above the unit).



### • Grounding

Ensure that you connect the earth ground wire to prevent possible electric shock (i.e. a TV with a three-prong grounded AC plug must be connected to a three-prong grounded AC outlet). If grounding methods are not possible, have a qualified electrician install a separate circuit breaker. Do not try to ground the unit by connecting it to telephone wires, lightning rods, or gas pipes.



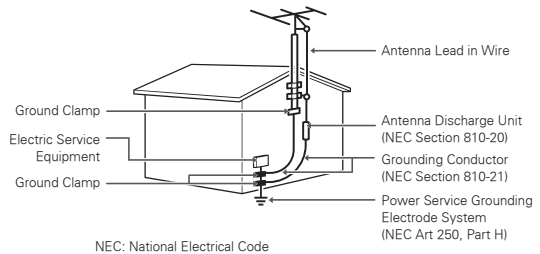
### • DISCONNECTING DEVICE FROM THE MAIN POWER

The power outlet must remain readily accessed in the event the device needs to be unplugged.

- As long as this unit is connected to the AC wall outlet, it is not disconnected from the AC power source even if the unit is turned off.
- Do not attempt to modify this product in any way without written authorization from LG Electronics. Unauthorized modification could void the user's authority to operate this product.
- ANTENNAS Outdoor antenna grounding**  
(Can differ by country):  
If an outdoor antenna is installed, follow the precautions below. An outdoor antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can come in contact with such power lines or circuits as death or serious injury can occur. Be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code (NEC) in the

U.S.A. provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes and requirements for the grounding electrode.

### Antenna grounding according to the National Electrical Code, ANSI/NFPA 70



### • Cleaning

When cleaning, unplug the power cord and wipe gently with a soft cloth to prevent scratching. Do not spray water or other liquids directly on the TV as electric shock may occur. Do not clean with chemicals such as alcohol, thinners or benzene.

### • Moving

Make sure the product is turned off, unplugged and all cables have been removed. It may take 2 or more people to carry larger TVs. Do not press or put stress on the front panel of the TV.

### • Ventilation

Install your TV where there is proper ventilation. Do not install in a confined space such as a bookcase. Do not cover the product with cloth or other materials while plugged. Do not install in excessively dusty places.

- If you smell smoke or other odors coming from the TV, unplug the power cord contact an authorized service center.
- Do not press strongly upon the panel with hand or sharp object such as nail, pencil or pen, or make a scratch on it.
- Keep the product away from direct sunlight.



- **Dot Defect**

The Plasma or LCD panel is a high technology product with resolution of two million to six million pixels. In a very few cases, you could see fine dots on the screen while you're viewing the TV. Those dots are deactivated pixels and do not affect the performance and reliability of the TV.

- **Generated Sound**

"Cracking" noise: A cracking noise that occurs when watching or turning off the TV is generated by plastic thermal contraction due to temperature and humidity. This noise is common for products where thermal deformation is required.

Electrical circuit humming/panel buzzing: A low level noise is generated from a high-speed switching circuit, which supplies a large amount of current to operate a product. It varies depending on the product.

This generated sound does not affect the performance and reliability of the product.

- Take care not to touch the ventilation openings. When watching the TV for a long period, the ventilation openings may become hot. This does not affect the performance of the product or cause defects in the product.

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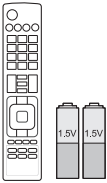
## 92 OPEN SOURCE LICENSE

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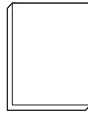
# ASSEMBLING AND PREPARING

## Unpacking

Check your product box for the following items. If there are any missing accessories, contact the local dealer where you purchased your product. The illustrations in this manual may differ from the actual product and item.



Remote control and batteries (AAA)



Owner's manual



CD manual  
(Included Pentouch Software)



Polishing cloth<sup>1</sup>  
(Depending on model)

- 1 Gently wipe the spots on the cabinet with the polishing cloth.

## PT490E series



M5 x 18

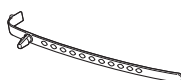


M6 x 28



M4 x 22

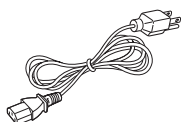
Screw for assembly



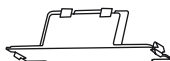
Cable holder



Power Cord holder



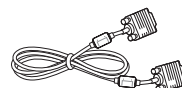
Power Cord



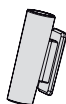
Protection cover



Protection cover tape

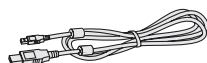


D-sub 15 pin signal cable

Pen Holder Bracket<sup>1</sup>Eye-bolt &  
Wall bracket

- 1 You can attach the pen holder bracket in a position that is convenient for you.  
The number of pen holder bracket may differ depending on the model.

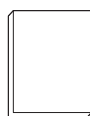
## Additional accessories

Touch Pen Dongle  
(AN-TD200)

Charging Cable

Touch Pen<sup>1</sup>  
(AN-TP200)

Pentouch Caution Guidelines



Owner's manual

- 1 The number of touch pen may differ depending on the model.

**CAUTION**

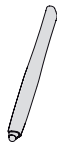
- Do not use any unapproved items to ensure the safety and product life span.
- Any damages or injuries by using unapproved items are not covered by the warranty.
- In case of some model, the thin film on screen is a part of TV, So don't take it off.

## Optional Extras

Optional extras can be changed or modified for quality improvement without any notification.

Contact your dealer for buying these items.

This device only works with compatible LG Plasma TV.

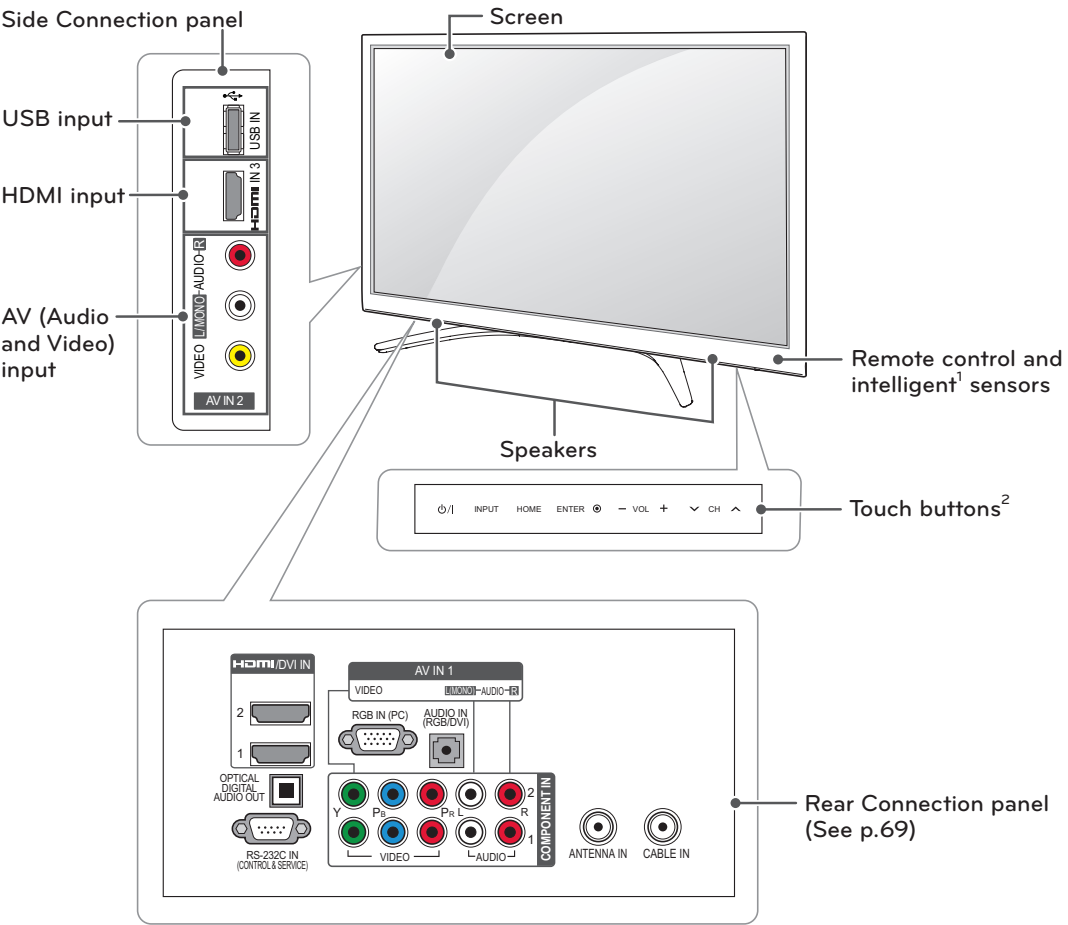


Touch Pen  
(AN-TP200)



Touch Pen Dongle  
(AN-TD200)

# Parts and buttons



Touch button <sup>2</sup>	Description
⏻ / I	Turns the power on or off.
INPUT	Changes the input source.
HOME	Accesses the main menus, or saves your input and exits the menus.
ENTER ◉	Selects the highlighted menu option or confirms an input.
- VOL +	Adjusts the volume level.
⏮ CH ⏭	Scrolls through the saved channels.

- 1 Intelligent sensor - Adjusts the image quality and brightness based on the surrounding environment.
- 2 All of the buttons are touch sensitive and can be operated through simple touch with your finger.



## Lifting and moving the TV

When moving or lifting the TV, read the following to prevent the TV from being scratched or damaged and for safe transportation regardless of its type and size.

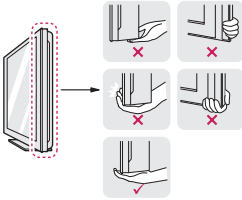


### CAUTION

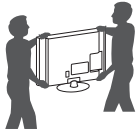
- Avoid touching the screen at all times, as this may result in damage to the screen.
- It is recommended to move the TV in the box or packing material that the TV originally came in.
- Before moving or lifting the TV, disconnect the power cord and all cables.
- When holding the TV, the screen should face away from you to prevent the screen from scratches.



- Hold the top and bottom of the TV frame firmly. Make sure not to hold the transparent part, speaker, or speaker grill area.



- When transporting a large TV, there should be at least 2 people.
- When transporting the TV by hand, hold the TV as shown in the following illustration.



- When transporting the TV, do not expose the TV to jolts or excessive vibration.
- When transporting the TV, keep the TV upright, never turn the TV on its side or tilt towards the left or right.

## Setting up the TV

Put your TV on a pedestal stand and mount the TV on a table or wall.

### Attaching the stand

If you are not mounting the TV to a wall, use the following instructions to attach the stand.

- 1 Lay the TV with the screen side down on a flat surface.



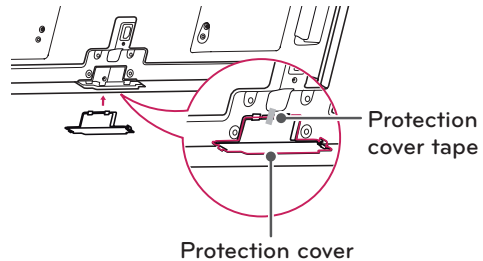
### CAUTION

- Lay a foam mat or soft protective cloth on the surface to protect the screen from damage. Make sure no objects press against the screen.

- 2 Push the supplied protection cover into the opening at the bottom of the TV until it locks in place.

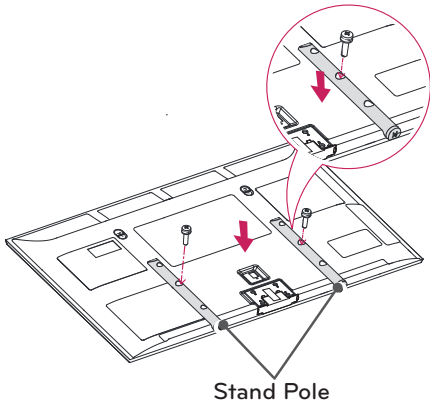
Attach the protection cover tape.

- This will protect the opening from accumulating dust and dirt.
- When installing the wall mounting bracket, use the Protection cover.

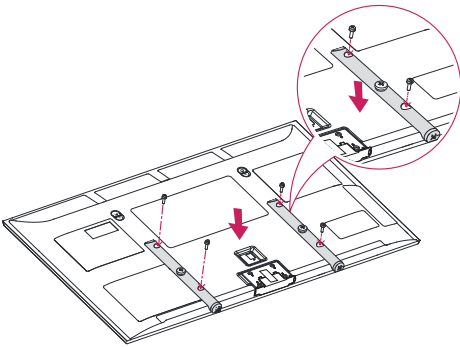


- 3 Assemble the parts of the STAND POLE with the TV.

Model	Screw for assembly	Number of screws
50PT490E	M6 x 28	2

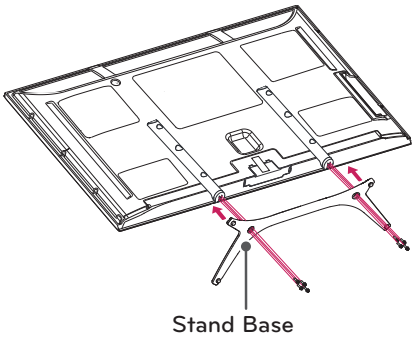


Model	Screw for assembly	Number of screws
50PT490E	M4 x 22	4



- 4 Secure the TV and the STAND BASE with the 8 screws.

Screw for assembly	Number of screws
M5 x 18	8

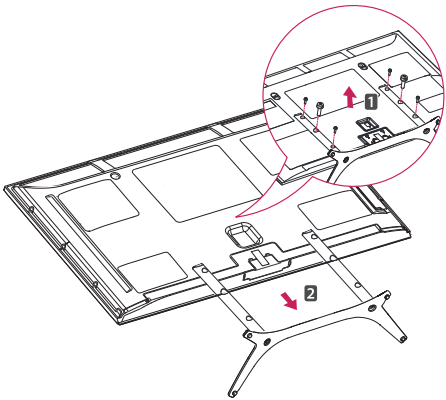


**CAUTION**

- Tighten the screws firmly to prevent the TV from tilting forward. Do not over tighten.

To detach the stand,

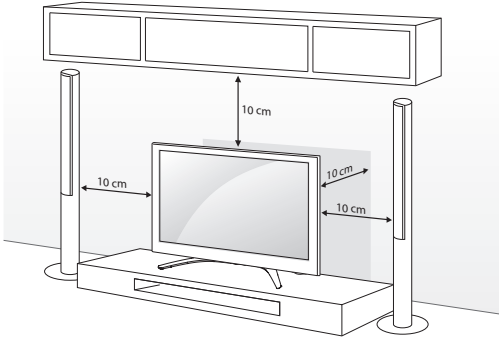
- 1 Lay the TV with the screen side down on a flat surface.
- 2 Remove the 6 screws and pull the stand away from the TV.



## Mounting on a table

- 1 Lift and tilt the TV into its upright position on a table.

- Leave a 10 cm (minimum) space from the wall for proper ventilation.



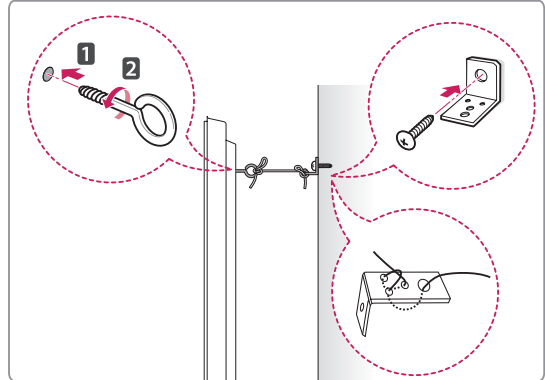
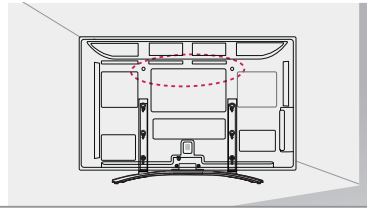
- 2 Connect the power cord to a wall outlet.



### CAUTION

- Do not place the TV near or on sources of heat, as this may result in fire or other damage.

## Securing the TV to a wall



- 1 Insert and tighten the eye-bolts on the back of the TV.  
- If there are bolts inserted at the eye-bolts position, remove the bolts first.
- 2 Mount the wall brackets with the bolts to the wall.  
Match the location of the wall bracket and the eye-bolts on the rear of the TV.
- 3 Connect the eye-bolts and wall brackets tightly with a sturdy rope.  
Make sure to keep the rope horizontal with the flat surface.



### CAUTION

- Make sure that children do not climb on or hang on the TV.

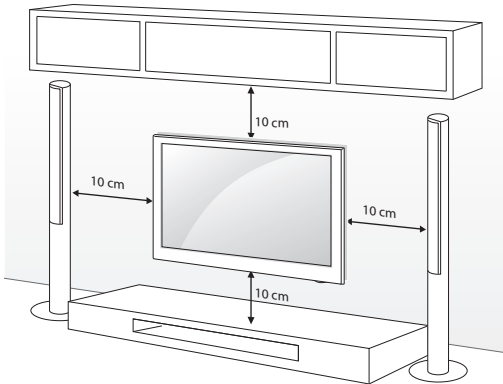


### NOTE

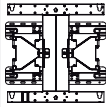
- Use a platform or cabinet that is strong and large enough to support the TV securely.

## Mounting on a wall

Attach an optional wall mount bracket at the rear of the TV carefully and install the wall mount bracket on a solid wall perpendicular to the floor. When you attach the TV to other building materials, please contact qualified personnel. We recommend that you use an LG brand wall mount when mounting the TV to a wall.



Make sure to use screws and wall mounts that meet the VESA standard. Standard dimensions for the wall mount kits are described in the following table.

Model	50PT490E
VESA	400 x 400
Standard screw	M6
Number of screws	4
Wall mount bracket (optional)	PSW400B, PSW400BG 



### CAUTION

- Disconnect the power first, and then move or install the TV. Otherwise electric shock may occur.
- If you install the TV on a ceiling or slanted wall, it may fall and result in severe injury. Use an authorized LG wall mount and contact the local dealer or qualified personnel.
- Do not over tighten the screws as this may cause damage to the TV and void your warranty.
- Use the screws and wall mounts that meet the VESA standard. Any damages or injuries by misuse or using an improper accessory are not covered by the warranty.

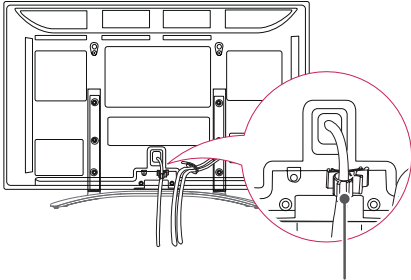


### NOTE

- Use the screws that are listed on the VESA standard screw specifications.
- The wall mount kit includes an installation manual and necessary parts.
- The wall mount bracket is optional. You can obtain additional accessories from your local dealer.
- The length of screws may differ depending on the wall mount. Make sure to use the proper length.
- For more information, refer to the manual supplied with the wall mount.

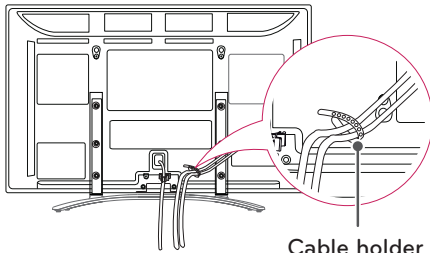
## Tidying cables

- 1 Install the power cord holder and power cord. It will help prevent the power cable from being removed by accident.



Power cord holder

- 2 Gather and bind the cables with the cable holder.



Cable holder



### CAUTION

- Do not move the TV by holding the cable holder and power cord holder, as the cable holders may break, and injuries and damage to the TV may occur.

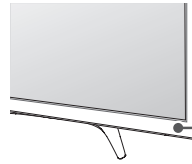
## Attaching Pen Holder Bracket

You can attach the pen holder bracket in a convenient position for use as illustrated below.



### NOTE

- Do not attach it to the Intelligent sensors or the remote control.

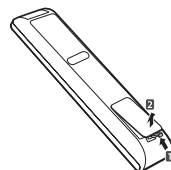


Remote control and intelligent sensors

# REMOTE CONTROL

The descriptions in this manual are based on the buttons on the remote control. Please read this manual carefully and use the TV correctly.

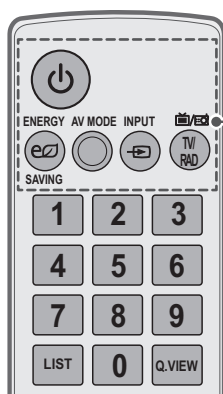
To replace batteries, open the battery cover, replace batteries (1.5 V AAA) matching the  $\oplus$  and  $\ominus$  ends to the label inside the compartment, and close the battery cover. To remove the batteries, perform the installation actions in reverse.



## CAUTION

- Do not mix old and new batteries, as this may damage the remote control.

Make sure to point the remote control toward at the remote control sensor on the TV.



### (POWER)

Turns the TV on or off.

### ENERGY SAVING (See p.59)

Adjusts the Energy Saving settings.

### AV MODE (See p.30)

Selects an AV mode.

### INPUT (See p.30)

Rotates through inputs.  
Also switches the TV on from standby.

### TV / RAD

Selects Radio, TV, CATV and DTV channel.

ENGLISH



### Number buttons

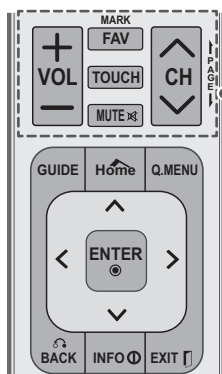
Enters numbers.

### LIST (See p.24)

Accesses the saved channel list.

### Q.VIEW

Alternates between the two last channels selected (pressing repeatedly).



#### **VOL**

Adjusts the volume level.

#### **MARK**

Selects a menu or option.

**FAV** (See p.24)

Accesses your favorite channel list.

**TOUCH** (See p.33)

Enters Pentouch mode.

#### **MUTE**

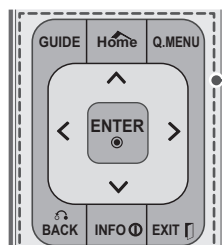
Mutes all sounds.

#### **CH**

Scrolls through the saved channels.

#### **PAGE**

Moves to the previous or next screen.



**GUIDE** (See p.27)

Displays the program event according to time scheduler.

#### **Home**

Accesses the main menus, or saves your input and exit the menus.

**Q. MENU** (See p.32)

Accesses the quick menu.

#### **Navigation buttons** (up/down/left/right)

Scrolls through menus or options.

#### **BACK**

Allows the user to move back one step in an interactive application or other user interaction function.

**INFO** (See p.25)

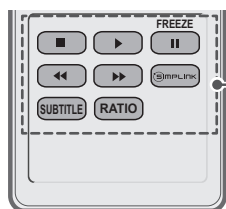
Views the information of the current program and screen.

#### **EXIT**

Clears all on-screen displays and returns to TV viewing.

**Colored buttons**

These access special functions in some menus.

**Control buttons**

Controls the SIMPLINK compatible devices (USB, SIMPLINK).

**SUBTITLE**

Recalls your preferred subtitle in digital mode.

**SIMPLINK** (See p.75)

Accesses the AV devices connected to the TV;  
Opens the SIMPLINK menu.

**RATIO** (See p.29)

Resizes an image.

**FREEZE**

Freezes the current frame (Not supported when using USB Mode and Simplink).



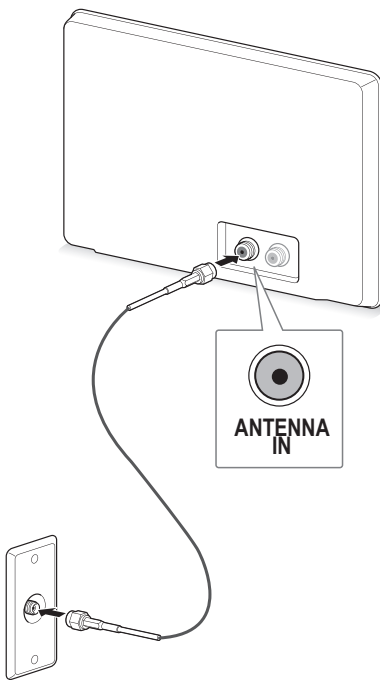
# WATCHING TV

## Connecting to an antenna or cable

Connect an antenna, cable, or cable box to watch TV while referring to the following. The illustrations may differ from the actual items and a RF cable is optional.

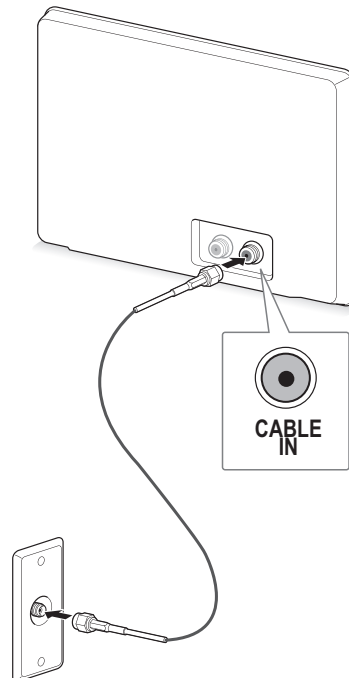
### Connecting an antenna or basic cable

Connect the TV to a wall antenna socket with an RF cable (75  $\Omega$ ).



#### NOTE

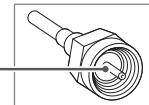
- To improve the picture quality in a poor signal area, please purchase a signal amplifier and install properly.
- Use a signal splitter to use more than 2 TVs.
- If the antenna is not installed properly, contact your dealer for assistance.



#### CAUTION

- Make sure not to bend the copper wire of the RF cable.

Copper wire



- Complete all connections between devices, and then connect the power cord to the power outlet to prevent damage to your TV.

## Turning the TV on for the first time

When you turn the TV on for the first time, the Initial setting screen appears. Select a language and customize the basic settings.

- 1 Connect the power cord to a power outlet.
- 2 In Standby mode, press the power button on the remote control to turn the TV on.

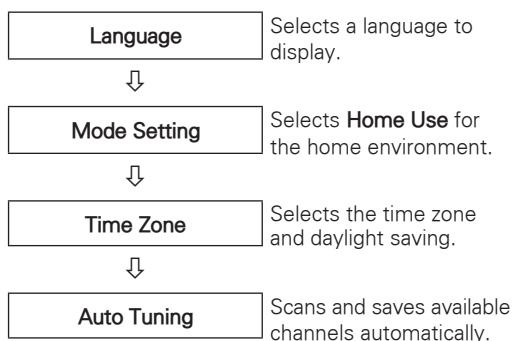
The Initial setting screen appears if you turn the TV on for the first time.



### NOTE

- You can also access **Factory Reset** by accessing **OPTION** in the main menu.

- 3 Follow the on-screen instructions to customize your TV settings according to your preferences.



### NOTE

- To display images in the best quality for your home environment, select **Home Use**.
- **Store Demo** is suitable for the retail environment.
- If you select **Store Demo**, any customized settings will switch back to the default settings of **Store Demo** in 5 minutes.

- 4 When the basic settings are complete, press **ENTER**.



### NOTE

- If you do not complete the Initial setting, it will appear whenever the TV turns on.
- Disconnect the power cord from the power outlet when you do not use the TV for a long period of time.

- 5 To turn the TV off, press the power button on the remote control.

## Watching TV

- 1 In Standby mode, press the power button on the remote control to turn the TV on.
- 2 Press **INPUT** and select **Antenna** or **Cable**.
- 3 Control the TV using the following buttons while you are watching TV.

Button	Description
CH (▲, ▼)	Scrolls through saved channels.
LIST <sup>1</sup>	Selects a channel on the saved channel list.
0 - 9	Selects a channel by entering numbers.
VOL (+, -)	Adjusts the volume level.
MUTE	Mutes all sounds.
AV MODE <sup>2</sup>	Selects an AV mode (See p.30).
Q.MENU	Accesses the quick menus (See p.32).
Q.VIEW	Alternates between the last two channels selected.
RATIO	Resizes an image (See p.29).
FREEZE	Freezes the current frame while you are watching TV.

- 1 The Lock icon (🔒) appears in front of a channel blocked with parental control.
- 2 Each **AV mode** has the optimized image and sound settings. If you select **Off**, the image and sound settings will be restored to the previously customized settings.
- 4 To turn the TV off, press the power button on the remote control.  
The TV switches to Standby mode.

## Managing channels

### Setting up channels

#### Storing channels

To store channels automatically,

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.
- 3 Press the Navigation buttons to scroll to **Auto Tuning** and press **ENTER**.
- 4 Select **Start** to start automatic tuning.  
The TV scans and saves available channels automatically.



#### NOTE

- If the TV scans and saves channels, the previously saved channels will be deleted.

- 5 When you are finished, press **EXIT**.  
When you return to the previous menu, press **BACK**.

To store channels manually,

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.
- 3 Press the Navigation buttons to scroll to **Manual Tuning** and press **ENTER**.
- 4 Scroll through the channel types, and then add, or delete channels. (DTV: add or update)
- 5 When you are finished, press **EXIT**.  
When you return to the previous menu, press **BACK**.



#### NOTE

- If the TV scans a blocked channel, you will be prompted to enter your password to keep the channel scanned.
- You can store up to 1000 channels. The number of channels that you can store differs depending on the broadcasting signal environment.
- The channels are stored in the order of **DTV**, **RADIO**, **TV** and **Cable TV**.

### Editing your channel list

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.
- 3 Press the Navigation buttons to scroll to **Channel Edit** and press **ENTER**.
- 4 Edit channels using the following buttons.

Button	Description
^	Highlights the channel type.
^, v, <, >	Scrolls through channel types or channels.
ENTER	Selects the highlighted channel to view.
CH (^, v)	Moves to the previous or next page
Blue button	Adds or deletes a channel. The deleted channel displays in blue.
FAV	Registers or cancels the current channel in favorite channel list.
Q.MENU	Selects your desired favorite channel group.
Yellow button	Blocks or unblocks a channel.

- 5 When you are finished, press **EXIT**.  
When you return to the previous menu, press **BACK**.

### Selecting a channel on the channel list

- 1 Press **LIST** to access the channel list.
  - To move to the previous or next page, press **CH (^, v)**.
  - To tune to the "SETUP menu - Channel Edit", press **Blue** button.
- 2 Select a channel you want and press **ENTER**.



#### NOTE

- The Lock icon (🔒) appears in front of a channel blocked with parental control.
- If you select the blocked channel, you will be prompted to enter your password.

## Using favorite channels

Add the channels that you watch frequently to the favorite list.

### Setting up your favorite list

- 1 Select a channel to add to the favorite list.
- 2 Press **FAV**.
- 3 Press the Navigation buttons to select your desired favorite channel group.
- 4 Press the **Yellow** button to register or cancel the current channel in favorite channel list.  
Press the **Blue** button to move to **Channel Edit**.
- 5 Press the Navigation buttons to scroll to **Favorite**.
- 6 Press **ENTER** to add the selected channel to the favorite list.
- 7 When you are finished, press **EXIT**.



#### NOTE

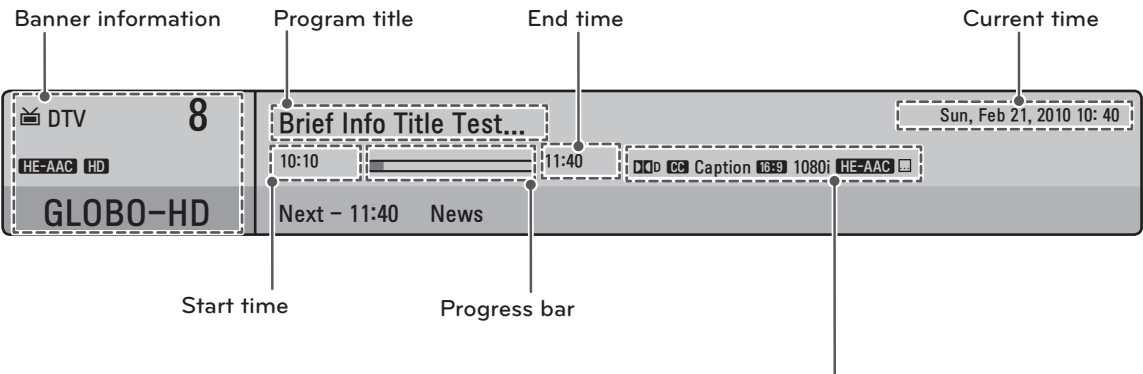
- You can also setup Favorite List in the **SETUP** menu - **Channel Edit**.

### Selecting a channel on the favorite list

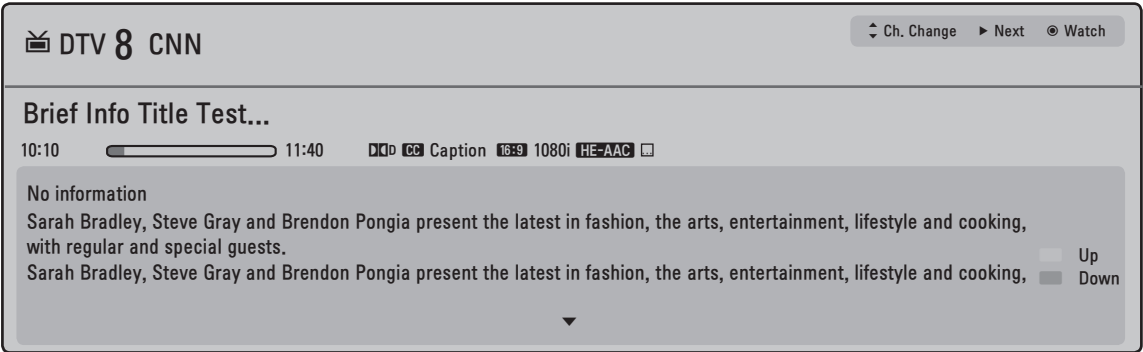
- 1 Press **FAV** to access the favorite list.
  - To move to the previous or next page, press **CH (^, v)**.
- 2 Select a channel you want and press **ENTER**.

## Checking current program info

Press **ENTER** to view the information of the currently program while you are watching.  
The following information appears at the top of the screen.



Icon		Description
Dolby Digital		The program contains a Dolby Digital audio signal in TV and HDMI input sources.
Caption		The program contains one or more language caption services. You can change the caption language using the quick menu.
Aspect ratio	 	The original aspect ratio of the video is 4:3. The original aspect ratio of the video is 16:9 (wide).
Resolution	480i 480p 720p 1080i 1080p	The video resolution is 720 x 480i. The video resolution is 720 x 480p. The video resolution is 1280 x 720p. The video resolution is 1920 x 1080i. The video resolution is 1920 x 1080p.
HE-AAC		Displayed with a HE-AAC Channel.
Subtitle		Displayed with a Subtitle Channel.



Button	Description
INFO	Shows current channel information.
< or >	Shows next channel information.
^ or v	Shows other channel's program information.

Channel Program Reservation

- 1 Press **INFO** to view the current channel program Information on the screen.
- 2 Press the **>** button to select a next channel program information and press **ENTER**.
- 3 Press the **<** or **>** buttons to scroll to **Yes** or **No** and press **ENTER**.

EPG (Electronic Program Guide) (In digital mode)

This system has an Electronic Program Guide (EPG) to help your navigation through all the possible viewing options.

The EPG supplies information such as program listings, start and end times for all available services. In addition, detailed information about the program is often available in the EPG (the availability and amount of these program details will vary, depending on the particular broadcaster). This function can be used only when the EPG information is broadcast by broadcasting companies.

The EPG displays the program details for next 8 days.



NOW/NEXT Guide Mode

You can view a program being broadcasted and one scheduled to follow.

Button	Description
Red	Changes EPG mode.
Yellow	Enters Manual Timer mode.
Blue	Enters Schedule List mode.
ENTER	When 'Now' is selected, it is moved to selected program and EPG disappears When 'Next' is selected, a reservation pop-up window appears.
< or >	Selects NOW or NEXT Program.
^ or v	Selects the Broadcast Program.
PAGE (^, v)	Page Up/Down
GUIDE	Switches off EPG.
BACK	
EXIT	

8 Day Guide Mode

Button	Description
Red	Changes EPG mode.
Green	Enters Date setting mode.
Yellow	Enters Manual Timer mode.
Blue	Enters Schedule List mode.
ENTER	When 'Currently broadcasting program' is selected, it is moved to selected program and EPG disappears. When 'Future broadcasting program' is selected, a reservation pop-up window appears.
< or >	Selects Program.
^ or v	Selects the Broadcast Program.
PAGE (^, v)	Page Up/Down
GUIDE	Switches off EPG.
BACK	
EXIT	

Date Setting Mode

Button	Description
Green	Switches off Date setting mode.
ENTER	Changes to the selected date.
< or >	Selects a date.
^ or v	Switches off Date setting mode.
PAGE (^, v)	Page Up/Down
GUIDE	Switches off EPG.
EXIT	

Detailed Information Box

Button	Description
< or >	Selects Remind setting mode.
^ or v	Text Up/Down
PAGE (^, v)	Page Up/Down
GUIDE	Switches off EPG.
EXIT	

## Manual Timer Mode

Button	Description
Yellow	Changes to Guide mode.
Blue	Changes to Schedule List mode.
ENTER	Sets Timer Watch.
<, >, ^, v	Selects date.
GUIDE	Changes to Guide mode.
BACK	Exits Manual Timer mode.
EXIT	

## Schedule List Mode

If you've created a schedule list, a scheduled program is displayed at the scheduled time even when you are watching a different program at the time.

Button	Description
Yellow	Changes to Manual Timer mode.
Blue	Changes to Guide mode.
ENTER	Selects your desired Option (Modify/Delete/Delete All).
^ or v	Selects Schedule List.
PAGE (^, v)	Page Up/Down
BACK	Switches off Schedule List.
EXIT	



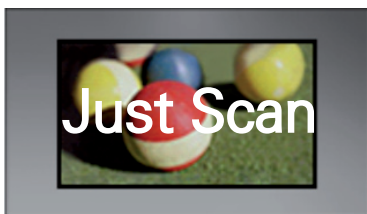
## Using additional options

### Adjusting aspect ratio

Resize an image to view at its optimal size by pressing **RATIO** while you are watching TV.

#### ! NOTE

- You can also change the image size by pressing **Q. MENU** or accessing **Aspect Ratio** in the **PICTURE** menu.
  - The available ratio varies depending on the input source.
    - The input sources: HDMI-PC and RGB-PC support 4:3 and 16:9.
    - The input sources: HDMI-PC 1920 X 1080 supports all of the aspect ratios.
- **16:9:** Resizes images to fit the screen width.
- **Just Scan:** Displays video images in the original size without disappearing parts at the edge of the image.



#### ! NOTE

- If you select **Just Scan**, you may see image noises at the edge or edges of the screen.
- The input sources: DTV, Component, HDMI-DTV, and DVI-DTV (720p/1080i/1080p) support Just Scan.

- **Original:** When your TV receives a wide screen signal it will automatically change to the picture format broadcast.



- **Full Wide:** When TV receives the wide screen signal, it will lead you to adjust the picture horizontally or vertically, in a linear proportion, to fill the entire screen fully. 4:3 and 14:9 video is supported in full screen without any video distortion through DTV input.



- **14:9:** You can view a picture format of 14:9 or a general TV programme in the 14:9 mode. The 14:9 screen is viewed in the same way as in 4:3, but is moved to the up and down.



- **4:3:** Resizes images to the previous standard 4:3.



- **Zoom:** Formats an image to fit the screen width. The top and bottom of the image may not appear.

**NOTE**

If you access, **Aspect Ratio** in the **Quick** menus,

- Press **<** or **>** to stretch an image vertically.
- Press **▲** or **▼** to move the zoom focus up or down.

- **Cinema Zoom:** Formats an image to the cinemascope ratio, 2.35:1.
  - To change the ratio of the cinema zoom, press **<** or **>** and its range is from 1 to 16.
  - To move the zoom focus up or down, press **▲** or **▼**.

**NOTE**

- If you enlarge or reduce an image, the image may be distorted.

## Changing AV modes

Each **AV mode** has optimized image and sound settings.

Press **AV MODE** repeatedly to select an appropriate mode.

Mode	Description
Off	Changes to the previously customized settings .
Cinema	Uses the optimized image and sound settings for a cinematic look.
Sport	Uses the optimized image and sound settings for dynamic action sports.
Game	Uses the optimized image and sound settings for fast gaming. When playing a video game using PlayStation or Xbox, it is recommended to use the Game mode. When in Game mode, functions related to picture quality will be optimized for playing games.

## Using the input list

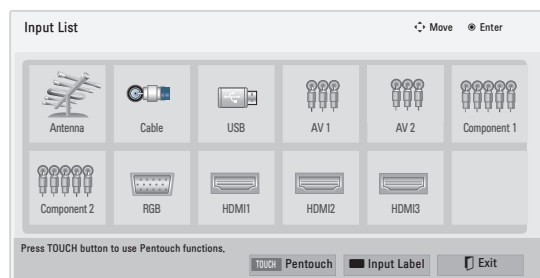
### Selecting an input source

- 1 Press **INPUT** to access the input sources.
  - The connected device displays on each input source.

**NOTE**

- You can also access the input source list by selecting **INPUT** in the **Home** menu.

- 2 Press the Navigation buttons to scroll to one of the input sources and press **ENTER**.



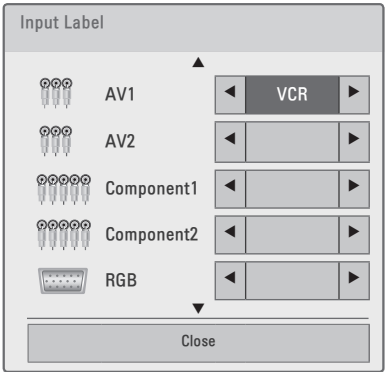
Input source	Description
Antenna/Cable	Watch TV over the air, cable, and digital broadcast.
USB	Play media files from a thumb drive.
AV	Watch video from a VCR or other external devices.

Component	Watch video from a DVD or other external devices, or through a digital set-top box.
RGB	Use the TV as a computer monitor.
HDMI	Watches video from a HTS or other high definition devices.

- The disconnected input sources will be gray.
- To add an input label, press the **Blue** button.
  - You can easily identify a device connected to each input source.
  - If you connect a new external device to the TV, a pop-up window appears. Select Yes on the pop-up window to switch to that input source.

Adding an Input label

Add a label to an input source so that you can easily identify a device connected to each input source.



- 1 Press **INPUT** to access the input sources.
- 2 Press the Navigation buttons to scroll to one of the input sources.
- 3 Press the **Blue** button.
- 4 Press the Navigation buttons to scroll to one of the input labels and press **ENTER**.
- 5 When you are finished, press **EXIT**.  
When you return to the previous menu, press **BACK**.

NOTE

- This function is not supported in Pentouch mode.

Locking the buttons on the TV (Child Lock)

Lock the buttons on the TV to prevent any unwanted operations or accidents by children.

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **LOCK** and press **ENTER**.
- 3 Input password.
- 4 Press the Navigation buttons to scroll to **Key Lock** and press **ENTER**.
- 5 Select **On** to activate the **Key Lock** feature.  
- To deactivate the **Key Lock** feature, select **Off**.
- 6 When you are finished, press **EXIT**.  
When you return to the previous menu, press **BACK**.

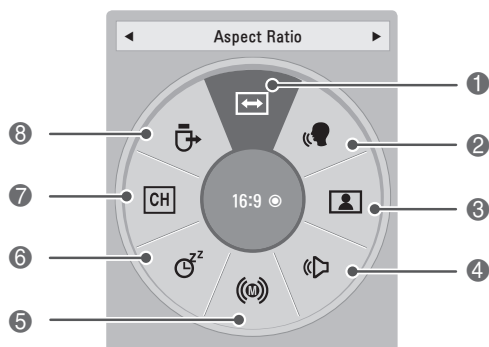
NOTE

- The TV is programmed to remember the last setting after you turn the TV off.
- If you turn the TV off with the Key lock feature activated, **⏻**, **INPUT**, **CH** (**^**, **v**) or Number buttons on the remote control.
- If you press any button on the TV with the **Key Lock** feature activated, **⚠ Key Lock** appears on the screen.

## Using the quick menu

Customize frequently used menus.

- 1 Press **Q. MENU** to access the quick menus.
- 2 Press the Navigation buttons to scroll through the following menus.



Menu	Description
① <b>Aspect Ratio</b>	Changes the image size.
② <b>Clear Voice II</b>	By differentiating the human sound range from others, it helps users listen to human voices better.
③ <b>Picture Mode</b>	Changes the image mode.
④ <b>Sound Mode</b>	Changes the sound mode.
⑤ <b>Audio Language</b>	Changes the audio language (Digital signal).
<b>Audio</b>	Changes the MTS sound (Analog signal).
⑥ <b>Sleep Timer</b>	Sets the length of time until the TV to turns off.
⑦ <b>Del/Add</b>	Edits the channels to add or delete the channel.
⑧ <b>USB Device</b>	Ejects a USB device when a USB device is connected.

### ! NOTE

- The available menus and options may differ from the input source that you are using.

- 3 Press the Navigation buttons to scroll to the option you want.
- 4 When you are finished, press **Q. MENU**.

## Using the customer support

### Testing the Picture / Sound

To execute picture and sound tests.

- 1 Press **Home** to access the main menus.
- 2 Press the **Red** button to scroll **Customer Support**.
- 3 Press the Navigation buttons to scroll **Picture Test** or **Sound Test** and press **ENTER**.
- 4 If you have any problem, press the Navigation buttons to scroll to **Yes** and press **ENTER**.
- 5 When you are finished, press **EXIT**. When you return to the previous menu, press **BACK**.

### Using the product or service information

To check the product or service information

- 1 Press **Home** to access the main menus.
- 2 Press the **Red** button to scroll **Customer Support**.
- 3 Press the Navigation buttons to scroll **Product/Service Info..**  
You can check the various product/Service information based on your model.
- 4 When you are finished, press **EXIT**. When you return to the previous menu, press **BACK**.

### Using Signal Test

To view information on the Manufacturer, Model/Type, Serial Number and Software Version.

- 1 Press **Home** to access the main menus.
- 2 Press the **Red** button to scroll **Customer Support**.
- 3 Press the Navigation buttons to scroll **Signal Test**.
- 4 Press **ENTER**.  
- Manufacturer, Model/Type, Serial Number, Software Version and information of Channel.
- 5 When you are finished, press **EXIT**. When you return to the previous menu, press **BACK**.

### ! NOTE

- This displays the information and signal strength of the tuned \*MUX.
- This displays the signal information and service name of the selected MUX. (\*MUX: A higher directory of channels in digital broadcasting (a single MUX contains multiple channels.)

# PENTOUCH

## Using Pentouch

Pentouch allows you to use touch pen supported features like Sketchbook, Photo Editor, Family Diary, Gallery, Internet and My Office.



### WARNING

- Do not drop or throw the touch pen. Do not swing the touch pen with the charging cable connected to it. This can damage the product or cause personal injury.
- For people using pacemakers, the distance between the touch pen and the pacemaker should be at least 30 cm. Never use it where wireless communication is prohibited. Protect it from extreme vibrations or magnetic objects. Wireless communications can cause malfunctions or failures.
- Do not use or store the touch pen in direct sunlight, near a hot object (e.g., a heater or fireplace), or in dusty or high-humidity environments. This can result in product deformation, malfunction, failure, or fire.
- If abnormal sound, smoke, or odor is detected, immediately remove the charging cable and stop using the product. Contact a service center. This can cause failures or fire.
- If fluid leaks from the touch pen, do not touch the fluid with bare hands. If fluid comes into contact with eyes, immediately rinse eyes with abundant tap water, then consult a doctor. The fluid can cause blindness. If the fluid comes into contact with skin or clothing, immediately wash it off with tap water. If the fluid causes skin inflammation or injury, consult a doctor.
- Do not allow the fluid to come into contact with fire. Do not heat the product in a microwave or convection oven.
- Use the specified USB cable when charging the battery.
- Keep the touch pen out of reach of children and away from unstable locations. Do not let children or pets put the touch pen in their mouths or lick the touch pen. Playing with or swallowing it may cause serious injury.
- Do not use the touch pen with wet hands. Do not let foreign substances (e.g., soft drinks or water) enter the touch pen; if this

happens, do not use the touch pen. Do not touch the optic receiver of the touch pen with a sharp object. This can result in electrical shock or damage the product.

- Do not use the product under extreme temperature conditions. Do not use the product immediately after going from the cold outdoors to the warm indoors. This can cause condensation in the pen. This can result in damaging the product. Turn off the power and wait several hours until the moisture evaporates before using the product.
- Never disassemble or modify the touch pen. The product warranty does not cover damage or injury caused by unauthorized disassembly. This can result in electrical shock or damage the product.
- If fluid leaks from the touch pen, the use of fire in the vicinity is strictly prohibited. The leaked fluid or gas can ignite a fire or cause damage.
- Avoid extreme shocks or impacts to the product, for example, placing a heavy object on it or pressing it.
- Do not display fixed characters or images on the screen for extended periods of time. This can cause image sticking.
- Do not connect the charging cable to peripheral devices or disks that are not specified. This can cause malfunctions or failures.
- Do not leave the touch pen on the floor. Stepping on it can damage the product or cause personal injury. Use the pen holder provided with the touch pen.
- Be careful when disposing of the product. The touch pen consists of a lithium-ion battery and plastic material. Burning can be dangerous, so dispose of it according to local regulations.
- Do not remove the charging cable using excessive force. This could damage the charging port and PC.
- Do not handle the touch pen with excessive force. If you use the touch pen with excessive force, you may leave foreign substances on the screen. Clean the product with the product cleaning cloth provided.
- When multiple people use the touch pen, make sure that sufficient space is available. Collisions can cause injury or failures.

## Step of using the Pentouch Program

Follow the steps below to use the Pentouch function.

- 1 Check the system requirements before installation.
- 2 Install the Pentouch program and the USB dongle driver from the installation CD.
- 3 Pair the pen and the dongle.
- 4 Connect the PC and the TV.
- 5 Configure the PC screen.
- 6 Activate the Pentouch mode on the TV.
- 7 Start the Pentouch program.

## System Requirements

Make sure that the drivers are installed properly to allow proper operation of the touch pen.

Supported Operating System	
Windows XP	32 bit
Windows Vista, Windows 7	32 bit
	64 bit

(Windows 7 Starter Edition is not supported.)

### Recommended System Requirements for Pentouch

- CPU: Dual-Core 2GHz or better
- Memory: 1GB or more
- HDD: 500MB or more
- Display: Graphics card with 1024 x 768 via an RGB or HDMI output port
- Windows 7 is recommend due to its support of multi-touch.



#### NOTE

- You must log in as an administrator to install or remove the program.
- Make sure to install the drivers found on the CD provided.
- You can also download this programme from the LG Electronics website.
- Make sure to close all running applications before installing the drivers.

## Installing the Pentouch Program

Follow the steps described in this manual to install the program.

- 1 Prepare your computer and start it.
- 2 After the computer starts, insert the CD provided. The installation screen appears automatically.  
(If the installation screen is not displayed automatically, access My computer and then click LG and index.htm to view the installation screen.)
- 3 Click [Install the Pentouch Program] in the installation window.  
The default folder is used for installation. A window appears to indicate that the installation was completed successfully.

## Installing the USB Dongle Driver

Install the Pentouch program before installing the USB dongle driver.

- 1 Click [Install the Pentouch USB Dongle Driver] in the installation window.  
The default folder is used for installation. A window appears to indicate that the installation was completed successfully.
- 2 In Windows XP, the [Found New Hardware Wizard] installs your driver automatically.
- 3 Restart your computer after the installation.



#### NOTE

- Disconnect the USB dongle first to install the driver.

## Removing the Pentouch Program and Driver

If there is a problem with the Pentouch program or driver installation or if an error occurs while using the program, follow the steps below to remove the program or driver, and then reinstall them.

- 1 On your computer, select [Start] → [Control Panel] → [Add/Remove Programs] to remove the Pentouch program or driver.
  - The installed driver: LG Pentouch Multi-touch Driver
  - The installed Pentouch program: Pentouch TV
- 2 Click [Yes]. A window appears telling you that the program/driver has been removed.
- 3 Please reboot your PC after removing the program or the driver.

## Pairing between Touch Pen and Dongle

### What is Pairing?

You need to pair the touch pen and the dongle before using the touch pen.

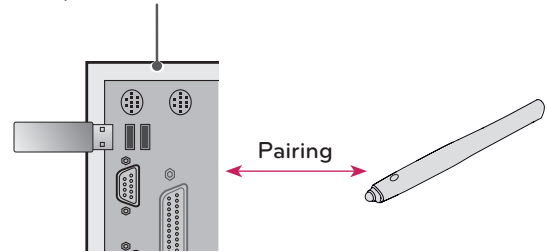
Once paired, you do not need to pair them again unless you:

- Bought a new pen
- Replaced the old pen with a new one
- Attempt to pair a new touch pen for using two pens simultaneously

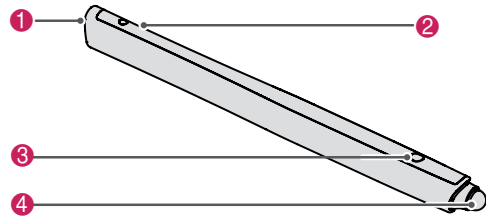
### Things to Know Before Pairing

- This program allows pairing of up to two pens and one dongle.
- If you want to use two pens simultaneously, they must be paired with your dongle one at a time.
- Pairing is not possible if a paired pen is currently in use.
- If you pair a new touch pen when two pens have already been paired with your dongle, all the previous pairing data is deleted.
- Please use the installation CD provided to install the driver on your PC. (For more information on driver installation, see the Driver Installation Guide.)

Computer Rear Panel

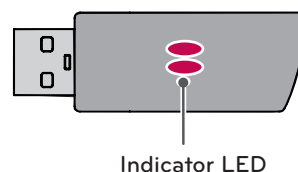


Touch Pen



No.	Description
①	USB charging port
②	LED indicator
③	Power/Home button
④	Touch pen tip switch

Dongle





### ! NOTE

- For more information, please refer to the user manual (Touch Pen, Dongle).
- Touch pens and dongles are sold separately at LG Electronics stores.
- When you leave your touch pen unused for a certain period of time (10 minutes), the pen automatically powers off.





**Pairing for the First Time**

- 1 Check that the LED indicator on the dongle connected to the computer is red.
- 2 Keep the touch pen within 50 cm of the dongle.
- 3 Press the  / **Home** button on the touch pen once.
- 4 The LED indicator on the touch pen will red for 2 seconds and blinks green 3 times when pairing is complete.
- 5 If the LED indicator is red for 2 seconds and blinks red 3 times, pairing is not successful. Please try pairing again.
- 6 Once a pen is paired, the red LED blinks once when you press the  / **Home** button.

**When Pairing Fails**

- 1 Pairing fails if the dongle driver is not installed on the computer.
- 2 Pairing fails if the LED indicator on the dongle is not red.
- 3 Remove the dongle from the PC, reinsert it and try pairing.

**Unpairing (Resetting the touch pen)**





- 1 Press the  / **Home** button on the touch pen and check that the red LED blinks once.
- 2 Press and hold the  / **Home** button on the touch pen for 9 to 10 seconds.
- 3 When the green light blinks once, release the button. The red light blinks 3 times and the pen is then in its initial state (unpaired).

**Caution When Unpairing**

- 1 Be careful not to unpair the pen by mistake. If unpaired, try pairing it again.
- 2 If you unpair and pair a normally functioning touch pen, the other paired pen may not work. In this case, unpair the nonfunctioning touch pen and pair it again by following the steps described in the Pairing for the First Time section.

**Touch pen Operation**

Once paired, you can use the touch pen in the following ways.

- 1 Powering on
  - Press the  / **Home** button once. The red and green LEDs will remain lit to indicate that the power is on.
- 2 Powering off
  - Press and hold the  / **Home** button. When the red LED turns on once briefly and once again, release the button. The red LED blinks 3 times and the pen is then powered off.
- 3 Pressing the  / **Home** button while using the touch pen
  - In the Pentouch program: Shows or hides the toolbar of the feature.
  - In Windows: Works in the same way as the right-click function. Point the touch pen at an object you want to right-click, then press the button.
- 4 The double-click function may not work as intended in Windows XP or Windows Vista. If this is the case, use the  / **Home** button (right-click) instead.
- 5 The touch pen works in the same way as a mouse in Windows.

**NOTE**

- After 3 hours of a continuous charge, you can use the touch pen for about 8 hours.
- Pentouch operation may not be normal while charging.
- Green LED will be turned on during using touch pen. If you don't use touch pen, it will be automatically turned off after 1 minute.
- Touch pen LED indicator for battery status
  - Charging: Red LED
  - Charging complete: Green LED
  - Battery level 20% or less: Red LED blinks every 3 seconds
  - No battery power: Red LED blinks every second and powers off automatically.

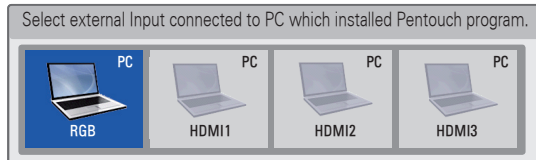


## Using the Pentouch Function

You need the following items to use the Pentouch functions:

- Computer with RGB or HDMI output
- RGB or HDMI cable

- 1 After connecting the TV and the PC with an RGB cable or an HDMI cable, use the **INPUT** button on the remote control and select the input connected to the PC.
- 2 Configure your PC screen by referring to the Display Resolution Setting for Pentouch section. If your PC is a notebook computer, you should configure the video to only be displayed on the TV and not on the PC screen.
- 3 Enter the Pentouch mode on your TV.
  - Press **TOUCH** button on the remote control or **Home** to access the main menus. Then press the navigation buttons to scroll to **Pentouch** and press **ENTER**.
- 4 Select the correct computer input connection to enter the Pentouch mode.



- 5 Use the touch pen or the mouse to start the Pentouch program. Pressing the **⏏ / Home** button on the touch pen works in the same way as right-clicking the mouse.

### NOTE

- If you turn off the TV and turn it back on while using the Pentouch function, the last screen on which you were working appears.
- To switch from Pentouch mode to others mode, either press the **INPUT** button on the remote control to select the desired input or press the **TV** button to return to the TV viewing screen.

## Display Resolution Settings for Pentouch

### On a Desktop Computer

#### In Windows XP

Right-click the desktop and select [Properties]. In the [Display Properties] window, set the screen resolution to 1024 x 768 under the [Settings] tab.

#### In Windows Vista

Right-click the desktop and select [Personalize] and [Display Settings]. Set the screen resolution to 1024 x 768 in the [Resolution] section.

#### In Windows 7

Right-click the desktop and select [Screen Resolution]. Set the screen resolution to 1024 x 768 in the [Resolution] section.

### On a Laptop Computer

#### Method 1:

On your laptop, press the "Fn + switch screen" key on the keyboard to display the computer screen on your TV screen, then set the computer's display resolution to 1024 x 768.

\* Note: The switch screen key of the laptop may be subject to change by the manufacturer.

LG	Samsung	HP	Toshiba
Fn+F7	Fn+F4	Fn+F5	Fn+F5
Sony	Acer	Dell	Lenovo
Fn+F7	Fn+F5	Fn+F8	Fn+F7

Method 2: Open the control panel for the graphics card on your computer.

Set [Display Mode] to the [Single Display] mode, then select [LG TV] as the display to use.

\* Set the computer's display resolution to 1024 x 768.

**NOTE**

- The method of changing display resolution settings may vary according to the computer's configuration.
- Pentouch does not support dual monitor mode or duplicate (mirror) monitor mode. Check that the PC screen is set to only be displayed on the TV.
- The switch screen key of the laptop may be subject to change by the manufacturer.

**CAUTION**

- The double-click function may not work as intended in Windows XP and Vista because these operating systems do not use touch drivers.
- The Pentouch operation may become slow depending on the computer's performance.
- The screen size may change if you disconnect the computer's output port and connect it again. If this happens, set the computer resolution again.
- If nothing is shown on the TV and the laptop screen when you press the switch screen key (Fn + manufacturer-specified key), try pressing the key again.
- The TV screen size may become smaller when you press the switch screen key (Fn + manufacturer-specified key). If this happens, adjust the resolution again.
- Changing the desktop icon properties in Windows 7 may affect the Pentouch program.
- It is recommended not to run other applications while using the Pentouch program.
- If the point you touch on the TV screen using the touch pen and the point indicated as touched on the computer screen do not match when the computer and TV are connected by a PC signal (RGB) cable, use the TV remote control to select [Menu] → [Picture] → [Screen] (RGB), then select [Auto Config.] to adjust the screen.
- If the PC and TV are only connected by a PC (RGB) signal cable, there will be no sound from the TV. Please connect the PC and the TV with a PC audio cable as well.
- The Play Video function in Photo Editor may not work as intended, depending on the codecs installed on your computer.
- Eraser function could be slower if drawing objects are overlapped exceed program performance depends on PC environment.
- If you want to open programs with a single click in Window XP or Vista, on your PC, go to Start → Control Panel → Folder Options and select "Single-click to open an item (point to select)".
- If your PC is running Windows XP, the virtual keyboard will only support English.
- When changing to the Pentouch mode, or when changing the resolution in Pentouch mode for RGB input signals, images may not be displayed properly for a while due to auto adjustment.

# Checking the Pentouch Functions

You see the home screen shown below when you start the Pentouch.

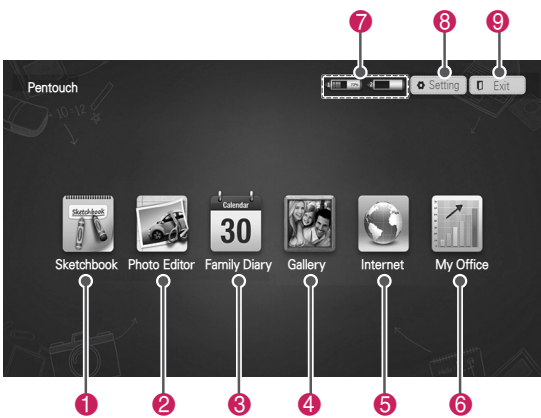
- 1 Press **TOUCH** button on the remote control.

!

NOTE

- You can also access the pentouch functions by selecting in the main menus.

- 2 Touch the screen with the touch pen to select **Sketchbook**, **Photo Editor**, **Family Diary**, **Gallery**, **Internet** or **My Office**.



When you select the **Setting**

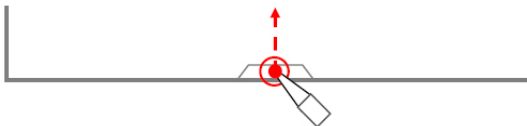
- 1 Select **Setting** from the Pentouch Home screen with the touch pen.
- 2 Select the desired option.

Option	Description
Open folder	Select a folder from which you will open photos or video files.
Save folder	Select a folder to which you want to save images.
Screensaver	Select the standby time for the screensaver.
Language	Select and change the language you wish to work in.

No.	Description
1	<b>Sketchbook</b> Select the background you want, then draw pictures on it.
2	<b>Photo Editor</b> Draw or edit pictures on photos and videos.
3	<b>Family Diary</b> A journal of photos, videos, notes, and sketches for family events by date.
4	<b>Gallery</b> A collection of pictures drawn and saved in Sketchbook, Photo Editor, Internet, and My office.
5	<b>Internet</b> Launch the web browser to capture the web content, then draw or write memos on it.
6	<b>My Office</b> Supports the glass effect in Microsoft Office and PDF files.
7	Touch pen battery level
8	Saving, opening folder location, screen saver settings and selecting language
9	Quit the Pentouch program

## Using Toolbar

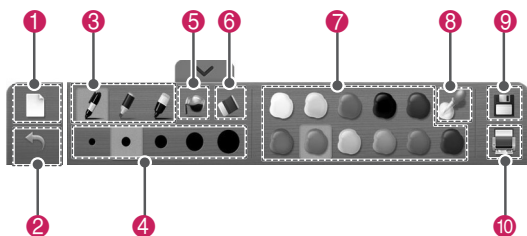
You can use the draw toolbar on all menu screens. Display the toolbar by pointing the touch pen at the bottom of the screen.



There are two types of toolbars: fixed and specialized.

- The fixed toolbar provides the functions used for all menus.
- The specialized toolbar provides the functions used for a specific menu.

### Fixed Toolbar Functions



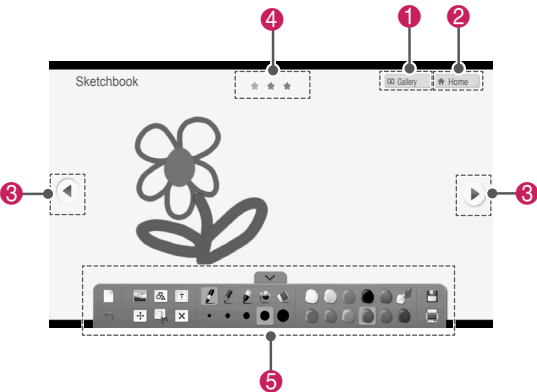
No.	Description
①	Remove the background and all the drawings.
②	Undo up to 5 recent actions.
③	Ink pen, highlighter pen, magic pen.
④	Select the thickness of the current drawing tool.
⑤	Fill a closed area with the selected color.
⑥	Eraser
⑦	Select a color for the current drawing tool.
⑧	Select any color from the color wheel.
⑨	Save
⑩	Print

\* Descriptions for the specialized toolbar functions are provided in the menu function description section.

# Using Sketchbook

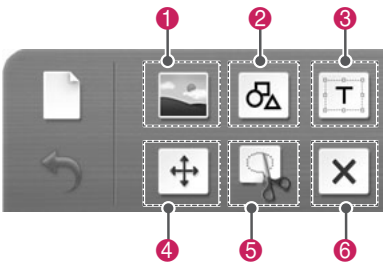
You can select the background you want, then draw pictures on it.




- 1 Touch the screen with the touch pen to select **Sketchbook**.
- 2 Touch the screen with the touch pen to select the desired option or use the toolbar to draw a picture.



No.	Description
1	Enter Gallery.
2	Enter the Pentouch Home menu.
3	Select them to go to the previous page or next page. You can move up to 3 pages.
4	Current page position
5	Toolbar functions

## Specialized toolbar functions

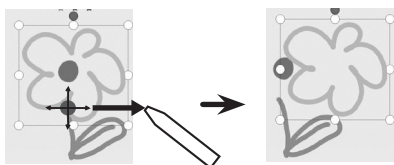


No.	Description
1	Select image for background. 
2	Insert basic figures. Select the desired icon, then short tap to create a default size figure. 
3	Insert text. If you select an area to enter the text, a keyboard will be displayed on the screen.  <div><p><b>NOTE</b></p><ul style="list-style-type: none"><li>For some operating systems, two virtual keyboards may be displayed.</li></ul></div>

When dragging a line, pen or shape, you can only move or resize a single object at a time. If you short tap an object and drag, the area of the selected object will be displayed.

#### Move

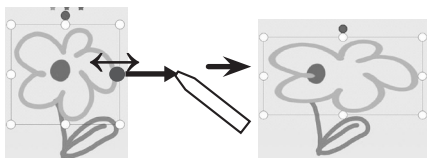
You can move an object by dragging the area of the selected object.



#### Expansion / Reduction

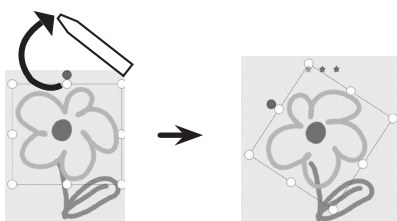
You can expand or reduce an object by dragging one of the 8 corners of the selected object. The object will be resized based on the corresponding corner/edge.

4



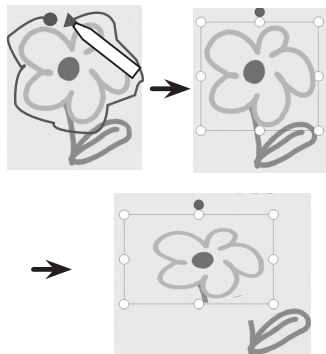
#### Rotation

Drag in rotation to rotate the selected object.



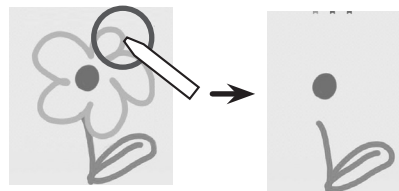
Cut the range and Move / Expansion / Reduction / Rotation.

5



Delete object from the screen.

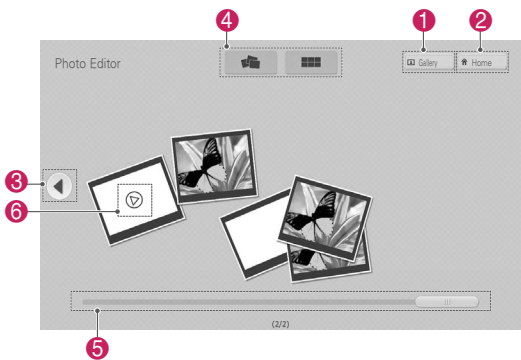
6



## Using Photo Editor

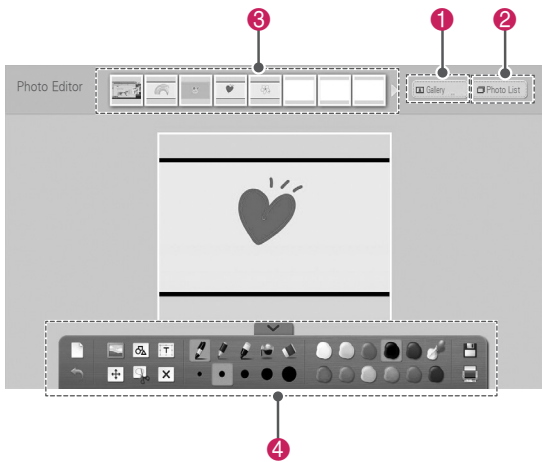
You can draw or edit image on photos and video capture images.

- 1 Touch the screen with the touch pen to select **Photo Editor**.
- 2 Touch the screen with the touch pen to select the desired option.



No.	Description
1	Enter Gallery.
2	Enter the Pentouch Home menu.
3	Select them to go to the previous page or next page.
4	Select photo list view option. (Scattered view / Sorted view)
5	Page navigation scrollbar
6	Only one video can be played at a time; the previously playing video is paused.

- 3 Select the photo or video you wish to decorate. You can decorate the picture with the toolbar.

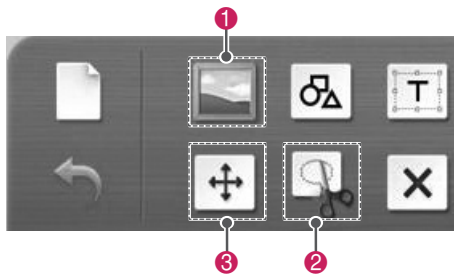


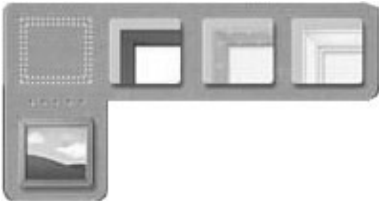
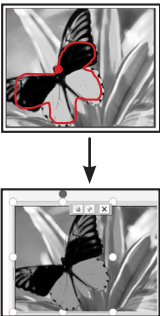

No.	Description
1	Enter Gallery.
2	Open Photo list.
3	Previews of all photos and videos in the folder are shown here. (from new to old)
4	Toolbar functions

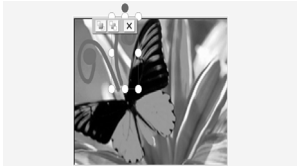



### NOTE

- When working with a video, you can use the pause button and extract the image of the paused frame to use it in Photo Editor.
- You can edit the photos or videos stored in the Photo List.
- The TV may not properly play the video files in the Pentouch mode depending on your computer.

Specialized toolbar functions



No.	Description
1	<p>Frame for image.</p>  <p>The sequence shows a butterfly image being placed into a frame. The first image shows the butterfly on a leaf. The second image shows the butterfly inside a square frame with a dashed border. The third image shows the butterfly inside a solid square frame.</p>
2	<p>Cut from the image.</p>  <p>The sequence shows a butterfly image being cut from a larger image. The first image shows a butterfly on a leaf with a red dashed outline around it. The second image shows the butterfly inside a square frame with a dashed border. The third image shows the butterfly inside a solid square frame.</p> <p>After select area to cut, you can change it's size.</p>  <p>The sequence shows the butterfly image being cut from the larger image and then being resized. The first image shows the butterfly on a leaf with a red dashed outline around it. The second image shows the butterfly inside a square frame with a dashed border. The third image shows the butterfly inside a solid square frame, with a mini pop-up window displaying the 'Bring to Front', 'Send to Back', and 'Delete' options.</p>

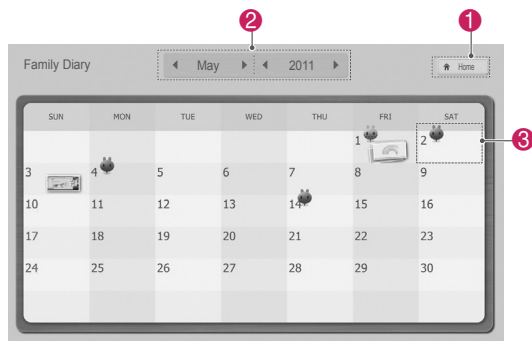
3	<p>Move an object.</p>  <p>The sequence shows a butterfly image being moved. The first image shows the butterfly on a leaf. The second image shows the butterfly inside a square frame with a dashed border. The third image shows the butterfly inside a solid square frame.</p> <p>If you select an object, a mini pop-up window will display.</p> <div> Bring to Front</div> <div> Send to Back</div> <div> Delete</div>
---	--



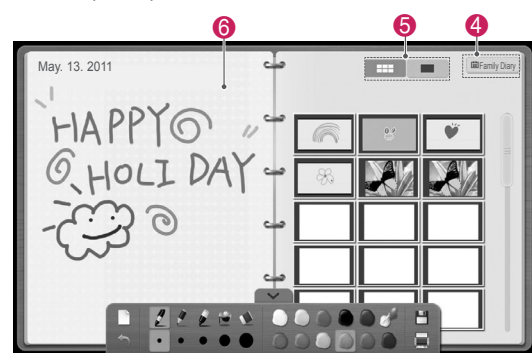
## Using Family Diary

You can keep a journal of photos, videos, notes, and sketches for family events by date.

- 1 Touch the screen with the touch pen to select **Family Diary**.
- 2 Select the desired date with the touch pen.



- 3 Use the toolbar to create and decorate the family diary.

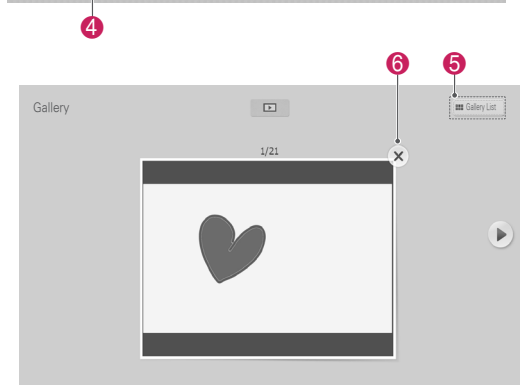
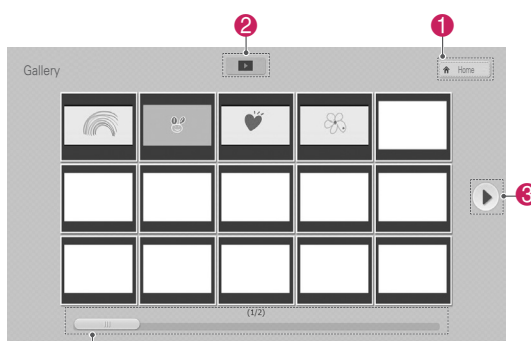


No.	Description
①	Enter the Pentouch Home menu.
②	Select date.
③	Dates with images are shown with icons. Select a date with images to see the screen.
④	Open the Family Diary screen.
⑤	Select Preview or Full Screen.
⑥	Draw or write here.

## Using Gallery

This is the gallery of the images you made and saved using Sketchbook, Photo Editor, Internet, and My office.

- 1 Touch the screen with the touch pen to select **Gallery**.
- 2 Touch the screen with the touch pen to select the desired option, and enjoy the Gallery screen.

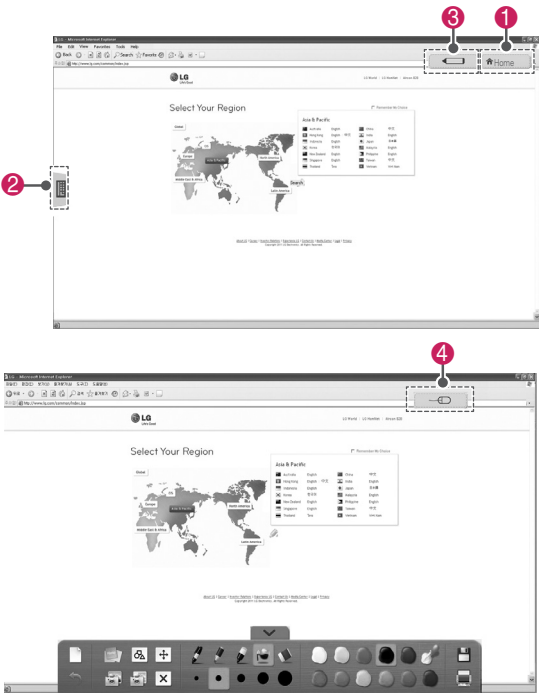


No.	Description
①	Enter the Pentouch Home menu.
②	Start slideshow from the first image on the current page. To stop the slide show, touch the screen while the slide show is playing with the touch pen. This will take you back to the previous screen.
③	Page button: Select them to go to the previous page or next page.
④	Page navigation scrollbar
⑤	Enter the Gallery List
⑥	When selected, the current image is deleted and the next image is displayed.

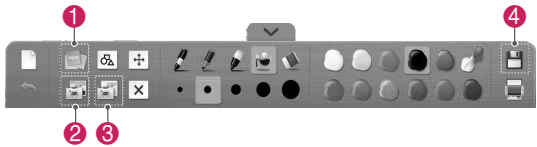
# Using Internet



You can capture web content to draw or write memos on it.

- 1 Touch the screen with the touch pen to select **Internet**.
- 2 Touch the screen with the touch pen to select the desired option or use the toolbar.



## Specialized toolbar functions



No.	Description
1	<b>Memo</b> Select image for memo.  
2	<b>Capture all</b> The Save confirmation message is shown.
3	<b>Capture selection</b> The Save confirmation message is shown after you select an area to capture.
4	Save

No.	Description
1	Enter the Pentouch Home menu.
2	Virtual keyboard tab: Insert text. Select the virtual keyboard tab to display the keyboard on the screen.
3	If you select a pen icon on your TV, the drawing mode will be activated. When you in drawing mode, the virtual keyboard will be hidden.
4	If you select a mouse icon on your TV, the click mode will be activated. Drawings will be cleared when you exit the drawing mode.

Using My Office

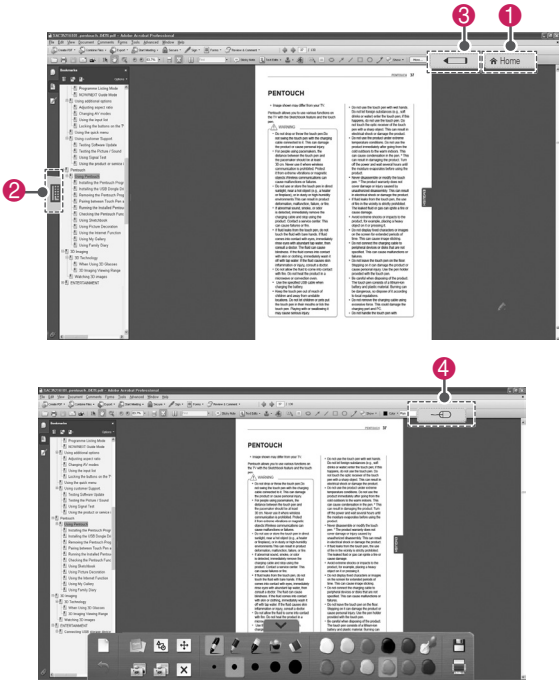
You can draw or write in Microsoft Office or PDF files.

Folders and formats supported are displayed in a window.

Supported file format

Type.	Supported file format
Office Files	2003 version ppt, doc, xls 2007 version pptx, docx, xlsx
	All Microsoft PowerPoint files (*.ppt, .pptx) All Microsoft Word files (*.doc, .docx) All Microsoft Excel files (*.xls, .xlsx) Outlook data files (*.msg, *.eml)
PDF Files	Adobe PDF files (*.pdf)

- 1 Touch the screen with the touch pen to select **My Office**.
- 2 Touch the screen with the touch pen, then in the Open popup window, select the file to open.
- 3 Touch the screen with the touch pen to select the desired option or use the toolbar.



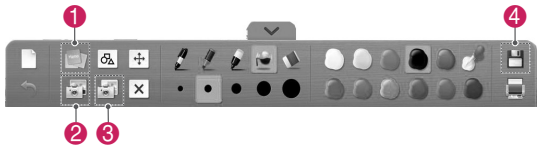
No.	Description
①	Enter the Pentouch Home menu.
②	Virtual keyboard tab: Insert text. Select the virtual keyboard tab to display the keyboard on the screen.
③	If you select a pen icon on your TV, the drawing mode will be activated. When you in drawing mode, the virtual keyboard will be hidden.
④	If you select a mouse icon on your TV, the click mode will be activated. Drawings will be cleared when you exit the drawing mode.

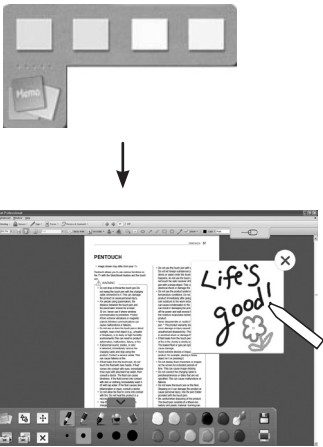


CAUTION

- Applications that support Microsoft Office and PDF files must be installed on your computer.

Specialized toolbar functions

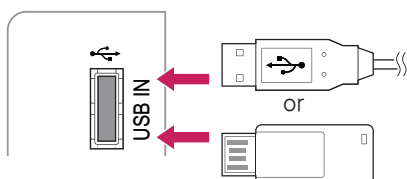


No.	Description
①	<b>Memo</b> Select image for memo. 
	<b>Capture all</b> The Save confirmation message is shown.
	<b>Capture selection</b> The Save confirmation message is shown after you select an area to capture.
	<b>Save</b>

# ENTERTAINMENT

## Connecting USB storage devices

Connect USB storage devices such as a USB flash drive or external hard drive to the TV and use multimedia features (See "Browsing files" on p. 49). Connect a USB flash drive or USB memory card reader to the TV as shown in the following illustration.



To disconnect a USB storage device, make sure to end the connection properly to prevent damages to the TV or files.

- 1 Press **Q.MENU** to access the quick menus.
- 2 Press the Navigation buttons to scroll to **USB Device** and press **ENTER**.
- 3 Disconnect the USB storage device only when the message says that it is safe to remove.



### CAUTION

- Do not turn the TV off or remove a USB storage device while the USB storage device is connected to the TV, as this could result in loss of files or damage to the USB storage device.
- Back up your files saved on a USB storage device frequently, as you may lose or damage the files and this may be not covered by the warranty.

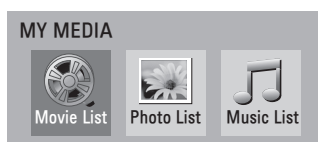
### Tips for using USB storage devices

- The TV recognizes only a USB storage device.
- If you connect a USB storage device to the TV through a USB hub, your TV may not recognize the USB storage device.
- The TV may not recognize a USB storage device that requires a special driver.
- The recognition speed of a USB storage device may differ depending on the device.
- Only use a USB storage device which has normal music or image files.
- Use only USB storage devices that are formatted as a FAT 32 or NTFS file system.
- If you format a USB storage device as a NTFS file system, you cannot delete the saved files.
- You may need to connect a USB storage device to an external power supply with a power adapter.
- If the TV does not recognize a connected USB storage device, replace the cable and try again. Do not use an excessively long cable.
- The TV does not support some USB storage devices properly.
- You can use a multi-partition (up to 4) USB storage device.
- You can use up to 4 USB storage devices at a time by using a USB multi-card reader.
- The file alignment method of a USB storage device is similar to the one of Window XP.
- You cannot create or delete a folder saved in a USB storage device directly on the TV.
- The number of characters for a file name is up to 100 English characters.
- If there are too many folders and files in one folder, it may not operate properly.
- The recommended capacity for a USB external hard disk is 1 TB or less and for a USB storage device is 32 GB or less.
- If a USB external hard disk with the Energy Saving feature does not work, turn the USB external hard disk off and on again to make it work properly. For more information, refer to the user manual of the USB external hard disk.
- USB storage devices below USB 2.0 are supported as well. But they may not work properly in the movie list.
- The electrostatic can cause USB device's malfunction. In this case, USB Device has to be plugged again.

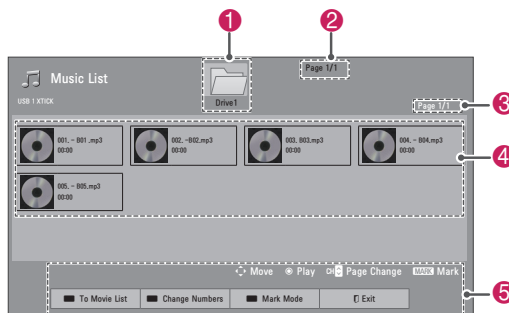
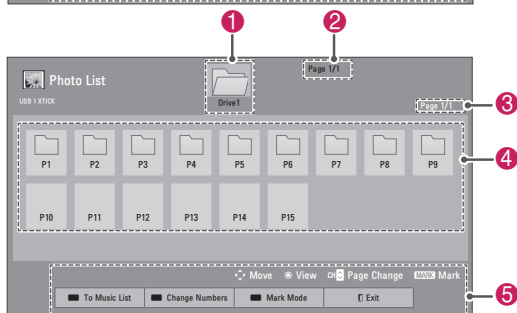
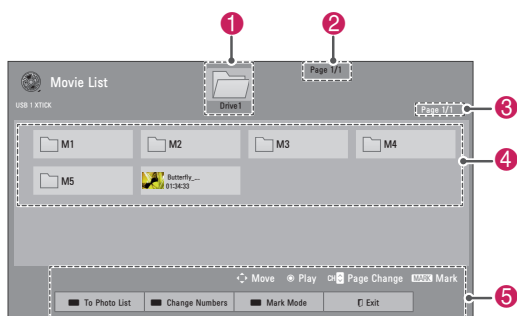
## Browsing files

Access the photo, music, or movie lists and browse files.

- 1 Connect a USB storage device.
- 2 Press **Home** to access the main menus.
- 3 Press the Navigation buttons to scroll to **MY MEDIA** and press **ENTER**.
- 4 Press Navigation buttons to scroll to **MOVIE LIST**, **PHOTO LIST**, or **MUSIC LIST** and press **ENTER**.



- 5 Select **Drive1** to access the connected USB storage device.
- 6 Press the Navigation buttons to Select a folder/ file you want.



No.	Description
1	Moves to the upper folder.
2	Current page number/total number of pages
3	Current page number/total number of pages
4	Contents under the folder focused on 1
5	Available buttons on the remote control
Button	Description
Green button	Move to <b>Photo List</b> , <b>Music List</b> , or <b>Movie List</b> .
Yellow button	<b>Change Numbers</b> : Changes the number or thumbnails displayed at a time.
Blue button	Allows you to mark certain files.

### Tips for using USB storage devices

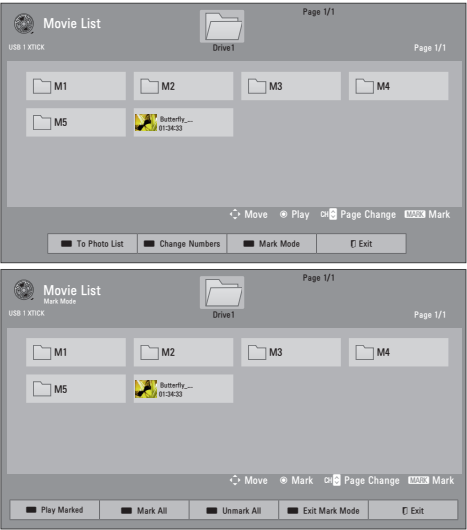
Type	Supported File Formats
Video	<ul style="list-style-type: none"> <li>• MPG, MPEG, DAT, TS, TRP, TP, VOD, MP4, MOV, MKV, DivX, AVI, Motion JPEG (AVI, MP4, MKV), ASF, WMV, FLV</li> <li>• Resolution: under 1920 pixel (width) x 1080 pixel (height)</li> <li>• Frame Rate: under 30 frame/sec (1920 x 1080), under 60 frame/sec (1280 x 720)</li> <li>• Max bitrate of playable movie file: 20 Mbps (Mega bit per second)</li> <li>• Bit rate of audio format: within 32 kbps to 320 kbps (MP3)</li> <li>• Supported subtitle format: *.smi, *.srt, *.sub (MicroDVD, SubViewer 1.0/2.0), *.ass, *.ssa, *.txt (TMPlayer), *.psb (PowerDivX)</li> </ul>

Type	Supported File Formats		
Photo	<ul style="list-style-type: none"> <li>JPG</li> <li>Available size Baseline: 64 pixel (W) x 64 pixel (H) - 15360 pixel (W) x 8640 pixel (H) Progressive: 64 pixel (W) x 64 pixel (H) - 1920 pixel (W) x 1440 pixel (H) * Do not use the progressive option when saving JPG files on your PC.</li> <li>It may take some time to open high-resolution images in full screen.</li> </ul>		
	File Extensions	Item	Profile
	2D jpeg jpg jpe	Supported file format	<ul style="list-style-type: none"> <li>SOF0: baseline</li> <li>SOF1: Extend Sequential</li> <li>SOF2: Progressive</li> </ul>
		Photo size	<ul style="list-style-type: none"> <li>Min: 64 x 64</li> <li>Max - Normal Type: 15360 (W) x 8640 (H)</li> <li>Progressive Type: 1920 (W) x 1440 (H)</li> </ul>
Music	<ul style="list-style-type: none"> <li>MP3</li> <li>Bit rate range 32 Kbps - 320 Kbps</li> <li>Sampling rate (Sampling Frequency) MPEG1 layer 3: 32 kHz, 44.1 kHz, 48 kHz MPEG2 layer 3: 16 kHz, 22.05 kHz, 24 kHz MPEG2.5 layer 3: 8 kHz, 11.025 kHz, 12 kHz * A copy-protected file will not play.</li> </ul>		

# Viewing Videos



Your TV can display video files from a USB storage device.

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **MY MEDIA** and press **ENTER**.
- 3 Press the Navigation buttons to scroll to **Movie List** and press **ENTER**.
- 4 Select **Drive1** to access the connected USB storage device.
- 5 Press the Navigation buttons to scroll to a folder/file you want and press **ENTER**.
- 6 Play a movie by using the following menus/buttons.









Button	Description
Navigation button	Scrolls through the files.
ENTER	Plays the highlighted file or enters the mark mode.
CH (⏮, ⏭)	Moves to the previous or next page.
MARK	Enters the mark mode.
Menu	Description
Play Marked	Plays the selected video.
Mark All	Selects all files.
Unmark All	Clears all of your selections.
Exit Mark Mode	Exits the Mark Mode.

# NOTE

- : Abnormal files are displayed using this graphic.
- : Non-supported files are displayed using this graphic.

## 7 Control playback by using the following buttons.



Button	Description
	Stops the playback.
	Plays a video.
	Pauses or resumes the playback.
	Scans backward in a file.
	Scans forward in a file.
	Plays videos in slow motion.
< or >	Skips to specific points in a file during playback. The time of a specific point will appear on the status bar. In some files, this function may not work properly.
<b>ENERGY SAVING</b>	Increases or decreases the brightness of your screen.
<b>Q.MENU</b>	Shows the Option menu (See p.52).
<b>AV MODE</b>	Select the desired source.
<b>BACK</b>	Hides the menu on screen. To see the menu again, press ENTER button to display.
<b>EXIT</b>	Returns to TV viewing.

### Tips for playing video files

- Some user-created subtitles may not work properly.
- Subtitles may not display some special characters or HTML tags.
- Subtitles in the non-supported languages are unavailable.
- The time information in an external subtitle file should be arranged in ascending order to play.

- The screen may suffer from temporary interruptions such as image stoppage or faster playback when you change the audio language.
- If you play a damaged video file, the video file may not be played correctly or some player functions may not be unavailable.
- The TV may not properly play the video files produced with certain encoders.
- If the recorded file does not have video or audio, either video or audio is not outputted
- If the TV plays the recorded file without video or audio, either video or audio is not outputted.
- The TV may not smoothly play the video files with a resolution higher than the supported resolution for each frame.
- The TV may not properly play the video files not included on the specified type and format.
- The TV may not play the files encoded with GMC (Global Motion Compensation) or quarter-pel motion estimation.
- The TV supports the only files saved in ASCII code in subtitles.
- The maximum number of characters displayed on each subtitle line is 250 (Korean), 500 (English), and 500 (Numbers).
- The TV supports the only 10,000 sync blocks within the subtitle file.
- The TV supports the H.264 codec up to the profile level 4.1.
- The TV does not support DTS audio codec.
- The TV cannot play a video file whose size is larger than 30 GB.
- If you play a video file through the USB connection that does not support the high speed, the video player may not work properly.
- The TV supports a USB storage device whose version is lower than 2.0. However, the USB storage device may not work properly in the movie list.
- The video file and its subtitle should be in the same folder and the name of the video file and subtitle should be identical.
- You can adjust the image by using **ENERGY SAVING** and **AV MODE**. But you cannot customize image options of each mode.
- The TV may not play the video files in the supported file format depending on the encoded condition.
- The TV will not play the video files that has a damaged index or no index.

**Q.MENU options for movie list**

- 1 Press **Q. MENU**.  
A pop-up window will appear.
- 2 Press the Navigation buttons to scroll to movie list option and press **ENTER**.
- 3 Press the Navigation buttons to scroll to one of the following options and press **ENTER**.

**Set Video Play.**

Option	Description	
Picture Size	Selects your desired picture format for videos. <ul style="list-style-type: none"> <li>• <b>Full Mode:</b> Files are played in full screen mode according to the aspect ratio of video.</li> <li>• <b>Original Mode:</b> Files are played in their native size.</li> </ul>	
Audio Language	Changes the Language Group of the audio for video files. Files with a single audio track cannot be selected.	
Subtitle Language	The subtitles can be turned on or off.	
Language	Activated for SMI subtitles and can select the language within the subtitle.	
Code Page	Subtitle font selection. When set to default, contents are displayed in the language set in "Option - Language - Menu Language."	
	Subtitle Language Group	Supported Language
	Latin1	English, Spanish
Sync	If the video is not synchronized with the captions, it can be adjusted by 0.5 second.	
Position	Moves the location of the subtitles.	
Size	Changes the subtitle font size.	
Repeat	Turn on/off repeat function of movie playback. When turned on, the file within the folder will be played back repeatedly. When turned off, if the next file name is similar to the previous file, it can be played sequentially.	

**NOTE**

- When replaying a video file after stopping, select "Yes" to restart where it previously stopped.
- If continuous series files exist within the folder, the next file will automatically be played. But, this excludes cases when the Repeat function of Movie List Option is turned "On" (See p.52) or when set as **Play Marked**.

**Set Video.**

Allows you to change Video presets. (Refer to "PICTURE Settings" on p.59).

**Set Audio.**

Allows you to change Video presets. (Refer to "AUDIO Settings" on p.63).

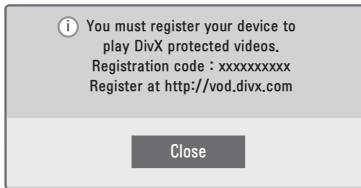


## DivX registration code

### Registering the DivX code

The DivX registration code allows you to rent or purchase the latest movies at [www.divx.com/vod](http://www.divx.com/vod). To play a rented or purchased DivX file, the file's registration code should be same as your TV's DivX registration code.

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **MY MEDIA** and press **ENTER**.
- 3 Press the **Blue** button.
- 4 Press the Navigation buttons to scroll to **DivX VOD Registration** and press **ENTER**.
- 5 View the registration code of your TV.



- 6 When you are finished, press **ENTER**.

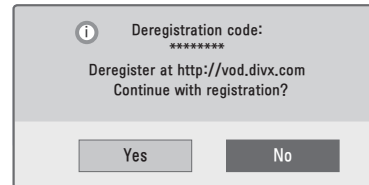
### ! NOTE

- While you are checking the registration code, some buttons may not work.
- If you use the DivX registration code of another device, you cannot play the rented or purchased DivX file. Make sure to use the DivX registration code assigned to your TV.
- The video or audio files that are not converted by the standard DivX codec may be corrupted or not be played.
- The DivX VOD code allows you to activate up to 6 devices under one account.

### Deactivating the DivX feature

You can deactivate all of the devices through the web server and block devices from activating. Delete the existing authentication information to receive a new DivX user authentication for the TV. Once this function is executed, a DivX user authentication is required again to see DivX DRM files.

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **MY MEDIA** and press **ENTER**.
- 3 Press the **Blue** button.
- 4 Press the Navigation buttons to scroll to **DivX Deregistration** and press **ENTER**.
- 5 Select **Yes** to confirm.



- 6 When you are finished, press **EXIT**.  
When you return to the previous menu, press **BACK**.

# Viewing Photos

You can view image files saved on a USB storage device. The displays on the screen may differ based on the model.

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **MY MEDIA** and press **ENTER**.
- 3 Press the Navigation buttons to scroll to **Photo List** and press **ENTER**.
- 4 Select **Drive1** to access the connected USB storage device.
- 5 Press the Navigation buttons to scroll to a folder/file you want and press **ENTER**.
- 6 View photos by using the following menus/buttons.



Button	Description
Navigation button	Scrolls the file.
ENTER	Views the highlighted file or enters the mark mode.
CH (▲, ▼)	Moves to the previous or next page.
MARK	Enters the mark mode.
Menu	Description
View Marked	Views the selected photo.
Mark All	Selects all files.
Unmark All	Clears all of your selections.
Exit Mark Mode	Exits the Mark Mode.

## NOTE

- : Abnormal files are displayed using this graphic.
- : Non-supported files are displayed using this graphic.

- 7 The following options are available while viewing photos.



Option	Description
Slideshow	<ul style="list-style-type: none"><li>• Starts or stops a slideshow with selected photos.</li><li>• If there are no selected photos, all photos saved in the current folder display during a slideshow.</li><li>• To set a slideshow speed, select Option.</li></ul>
BGM (Background Music)	<ul style="list-style-type: none"><li>• Turns the background music on or off. To set the background music folder, select Option.</li></ul> <div><b>NOTE</b><ul style="list-style-type: none"><li>• You can't change or set-up the BGM while viewing the *.mpo files (3D camera file).</li></ul></div>
⌚ (Rotate)	Rotates photos clockwise (90°, 180°, 270°, 360°). <div><b>NOTE</b><ul style="list-style-type: none"><li>• The supported photo size is limited. You cannot rotate a photo if the resolution of the rotated width is larger than the supported resolution size.</li></ul></div>
Q (Zoom In)	Views the photo by zoom in 2, 4 times by using Blue button.
e (ENERGY SAVING)	Increases or decreases the brightness of your screen.
Option	Shows the Option menu (See p.55).
Hide	Hides the option window. To display the options, press ENTER.
Exit	Moves to the previous menu screen.


## NOTE

- Option values changed in Photo List do not affect Movie List and Music List.
- Option values changed in Photo List or Music List are changed likewise in Photo List and Music List, but not Movie List.

### Q.MENU options for photo list

- Press **Q. MENU**.  
A pop-up window will appear.
- Press the Navigation buttons to scroll to photo list option and press **ENTER**.
- Press the Navigation buttons to scroll to one of the following options and press **ENTER**.

### Set Photo View.

Option	Description
Slide Speed	Selects a slideshow speed (Fast, Medium, Slow).
BGM	Selects a music folder for the background music. <ul style="list-style-type: none"> <li>Repeat</li> <li>Random</li> </ul> <div>  <b>NOTE</b> <ul style="list-style-type: none"> <li>You cannot change the music folder while the background music is playing.</li> </ul> </div>

### Set Video.

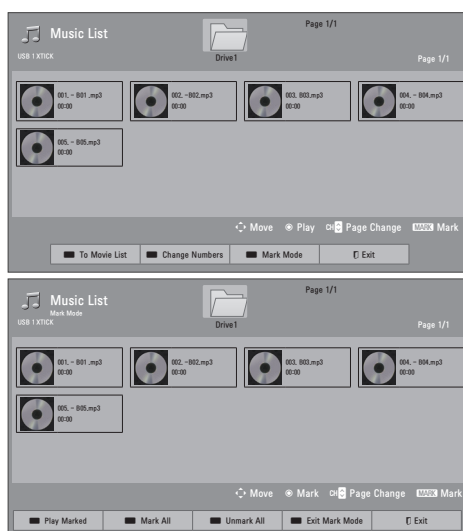
Allows you to change Video presets. (Refer to "PICTURE Settings" on p.59).

### Set Audio.

Allows you to change Video presets. (Refer to "AUDIO Settings" on p.63).

## Listening to music

- Press **Home** to access the main menus.
- Press the Navigation buttons to scroll to **MY MEDIA** and press **ENTER**.
- Press the Navigation buttons to scroll to **Music List** and press **ENTER**.
- Select **Drive1** to access the connected USB storage device.
- Press the Navigation buttons to scroll to a folder/file you want and press **ENTER**.
- Play music by using the following menus/buttons.



Button	Description
Navigation button	Scrolls through the files.
<b>ENTER</b>	Plays the highlighted file or enters the mark mode.
<b>CH</b> (⤴, ⤵)	Moves to the previous or next page.
<b>MARK</b>	Enters the mark mode.
Menu	Description
<b>Play Marked</b>	Plays the selected music file.
<b>Mark All</b>	Selects all files.
<b>Unmark All</b>	Clears all of your selections.
<b>Exit Mark Mode</b>	Exit the Mark Mode.

**NOTE**

- : Abnormal files are displayed using this graphic.
- : Non-supported files are displayed using this graphic.

- 7 Control playback by using the following buttons.

Button	Description
	Stops playback.
	Plays a music file.
	Pauses or resumes playback.
	Skips to the previous file.
	Skips to the next file.
	Displays photos during playback.
(ENERGY SAVING)	Increases or decreases the brightness of your screen.
Option	Shows the Option menu (See p.56).
Hide	Hides the option window. To display the options, press <b>ENTER</b> .
Exit	Moves to the previous menu screen.

**Q.MENU options for music list**

- 1 Press **Q. MENU**.  
A pop-up window will appear.
- 2 Press the Navigation buttons to scroll to music list option and press **ENTER**.
- 3 Press the Navigation buttons to scroll to one of the following options and press **ENTER**.

**NOTE**

- Option values changed in Movie List does not affect the Photo List and Music List.
- Option value changed in Photo List and Music List are changed likewise in Photo List and Music List.

**Set Audio Play.**

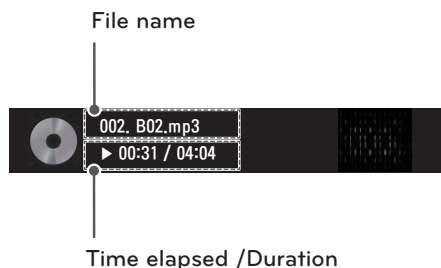
Select Repeat or Random option.

**Set Audio.**

Allows you to change Video presets. (Refer to "AUDIO Settings" on p.63).

**NOTE**

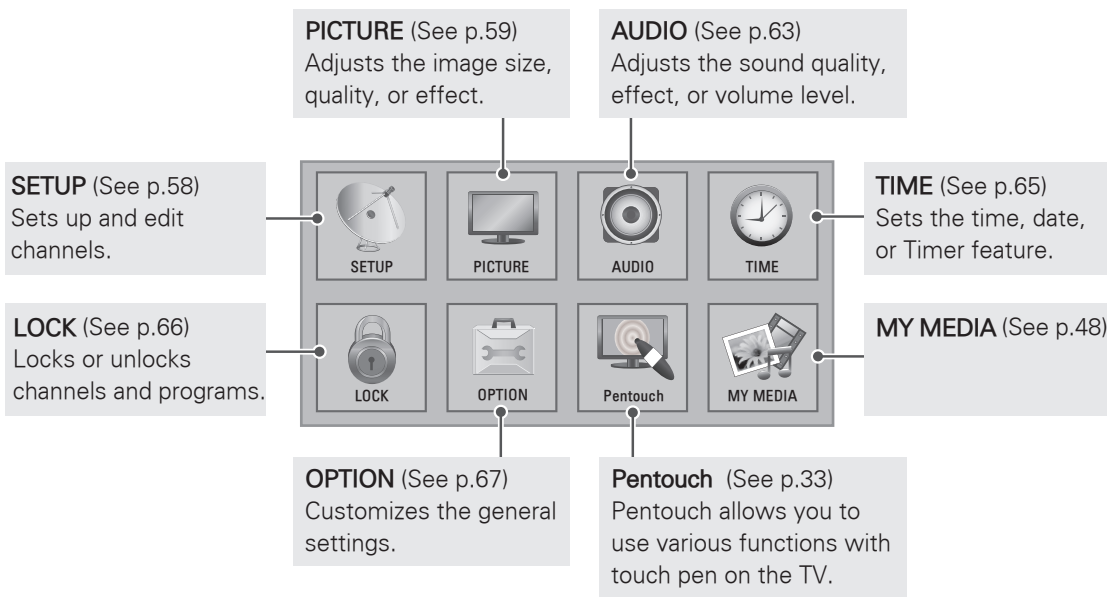
- The TV will not play copy protected files.
- If the TV is not in use for some time during playback, the information box as a screensaver will appear to prevent image burn.  
To return to the Music list screen, press **ENTER** or **BACK**.



# CUSTOMIZING TV SETTINGS

## The Main Menu

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to one of the following menus and press **ENTER**.
- 3 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
- 4 When you are finished, press **EXIT**.



# Customizing Settings

## SETUP Settings

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.
- 3 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
  - To return to the previous level, press **BACK**.
- 4 When you are finished, press **EXIT**.

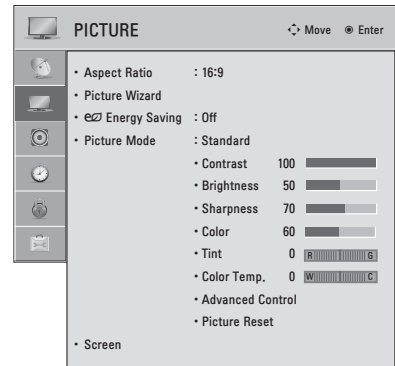


The available channel settings are described in the following.

Setting	Description
Auto Tuning	Tunes and stores all available channels through antennas or cable inputs (See p.23).
Manual Tuning	Tunes and stores the channels you want manually (See p.23).
Channel Edit	Edits the channel (See p.24).

## PICTURE Settings

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **PICTURE** and press **ENTER**.
- 3 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
  - To return to the previous level, press **BACK**.
- 4 When you are finished, press **EXIT**.



The available picture settings are described in the following.

Setting	Description										
<b>Aspect Ratio</b>	Changes the image size to view images at its optimal size (See p.29).										
<b>Picture Wizard</b>	Adjusts the image quality and calibrates the screen. The customized options will be saved as <b>Expert1</b> in the <b>Picture Mode</b> . <div> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• If you use <b>Picture Wizard</b>, the <b>Energy saving</b> feature will turn off automatically.</li> <li>• To reset changes made by <b>Picture Wizard</b>, operate <b>Picture Reset</b> when <b>Picture Mode</b> is on <b>Expert1</b>.</li> </ul> </div>										
<b>Energy Saving</b>	Reduces the power consumption by adjusting the screen brightness. <table border="1"> <thead> <tr> <th colspan="2">Option</th></tr> </thead> <tbody> <tr> <td><b>Intelligent sensor</b></td><td>The most suitable picture is automatically adjusted according to the surrounding conditions.</td></tr> <tr> <td><b>Off</b></td><td>Select if this feature is not necessary.</td></tr> <tr> <td><b>Minimum/Medium/Maximum</b></td><td>Selects the brightness level.</td></tr> <tr> <td><b>Screen off</b></td><td>The screen turns off in 3 seconds. Pressing any button of the remote control will turn on the screen again.</td></tr> </tbody> </table>	Option		<b>Intelligent sensor</b>	The most suitable picture is automatically adjusted according to the surrounding conditions.	<b>Off</b>	Select if this feature is not necessary.	<b>Minimum/Medium/Maximum</b>	Selects the brightness level.	<b>Screen off</b>	The screen turns off in 3 seconds. Pressing any button of the remote control will turn on the screen again.
Option											
<b>Intelligent sensor</b>	The most suitable picture is automatically adjusted according to the surrounding conditions.										
<b>Off</b>	Select if this feature is not necessary.										
<b>Minimum/Medium/Maximum</b>	Selects the brightness level.										
<b>Screen off</b>	The screen turns off in 3 seconds. Pressing any button of the remote control will turn on the screen again.										

Setting	Description	
<b>Picture Mode</b>	Selects one of the preset image or customizes options in each mode for the best TV screen performance. You are also able to customize advanced options of each mode. The available preset picture modes vary depending on the TV.	
	<b>Mode</b>	
	Vivid	Adjusts the video image for the retail environment by enhancing the contrast, brightness, color, and sharpness.
	Standard	Adjusts the image for the normal environment.
	APS	Maximizes video image reducing power consumption without hurting picture quality.
	Cinema	Optimizes video image for a cinematic look to enjoy movies as if you are in a movie theater.
	Sport	Optimizes video images for high and dynamic actions by emphasizing primary colors such as white, grass, or sky blue.
	Game	Optimizes the video image for a fast gaming screen such as PCs or games.
	Photo	Optimizes the still image like a photo file in USB mode. » e.g.) when connecting the external device like a DSLR.
	Expert	Adjusts the detailed video image settings for video experts as well as general viewers.
<b>SCREEN</b>	Customizes the PC display options.	
	<b>Option</b>	
	Resolution	Selects a proper resolution when your PC uses 1024 X 768, 1280 X 768, or 1360 X 768 resolution.
	Auto Configure	Sets the TV to optimize the options automatically for the TV display.
	Position	Locates the image at the proper position.
	Size	Adjusts the image size.
	Phase	Eliminates horizontal streaking.
	Reset	Restores the options to the default setting.

### Basic Image Options

Setting	Description
<b>Contrast</b>	Increases or decreases the amplitude of the video signal. You may use Contrast when the bright part of the picture is saturated.
<b>Brightness</b>	Adjusts the base level of the signal in the picture.
<b>Sharpness</b>	Adjusts the level of crispness in the edges between the light and dark areas of the picture. The lower the level, the softer the image.
<b>Color</b>	Adjusts intensity of all colors.
<b>Tint</b>	Adjusts the balance between red and green levels.
<b>Color Temp.</b>	Set to warm to enhance hotter colors such as red, or set to cool to enhance cooler colors such as blue.
<b>Advanced Control or Expert Control</b>	Customizes the advanced options.
<b>Picture Reset</b>	Restores the options of each mode to the factory default.



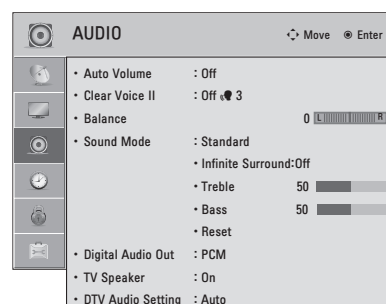
## Advanced Image Options

Setting	Description	
<b>Dynamic Contrast</b>	Adjusts the contrast to keep it at the best level according to the brightness of the screen. The picture is improved by making bright parts brighter and dark parts darker.	
<b>Dynamic Color</b>	Adjusts screen colors so that they look livelier, richer and clearer. This feature enhances hue, saturation and luminance so that red, blue and green white look more vivid.	
<b>Noise Reduction</b>	Reduces screen noise without compromising video quality.	
<b>Gamma</b>	You can adjust brightness of dark area and middle gray level area of the picture. <ul style="list-style-type: none"> <li>» Low: Make the dark and middle gray level areas brighter.</li> <li>» Medium: Express the original picture level.</li> <li>» High: Make the dark and middle gray level area darker.</li> </ul>	
<b>Black Level</b>	Sets black level of the screen to proper level. <ul style="list-style-type: none"> <li>» Low: The reflection of the screen gets darker.</li> <li>» High: The reflection of the screen gets brighter.</li> </ul>	
<b>Real Cinema or Film Mode</b>	Makes video clips recorded in film look more natural by eliminating judder effect. DVD and Blu-ray movies are filmed at 24 frames per second (fps). With LG Real Cinema, every frame is consistently processed 5 times in 1/24 of a second producing 120 fps with TruMotion or 2 times in 1/24 of a second producing 48 fps without TruMotion, thus totally eliminating the judder effect. This function can also work when TruMotion is off.	
<b>Color Gamut</b>	<b>Advanced Control</b> Maximizes the utilization of color to increase color quality. <ul style="list-style-type: none"> <li>» <b>Standard:</b> Displays standard set of colors.</li> <li>» <b>Wide:</b> Increase number of colors used.</li> </ul>	
	<b>Expert Control</b> Displays color domain of the signal. <ul style="list-style-type: none"> <li>» <b>Standard:</b> Displays standard set of colors.</li> <li>» <b>Wide:</b> Increase number of colors used.</li> </ul>	
<b>Edge Enhancer</b>	Shows clearer and distinctive yet natural edges of the video. This function works well over Sharpness UI 60 value.	
<b>xvYCC</b>	This produces richer colors. This feature represents rich colors as much as a conventional video signal. This function is enabled in " <b>Picture mode - Cinema, Expert</b> " when xvYCC signal is inputted through HDMI.	
<b>Color Filter</b>	This is the function to filter the specific colors of the video. You can use the RGB filter to set color saturation and hue accurately.	
<b>Expert Pattern</b>	This is the pattern used for expert adjustment. This function is enabled in " <b>Picture Mode - Expert</b> " when you watch DTV.	
<b>Color Temperature</b>	Adjusts the overall color of the screen by changing the white baseline.	
	a. Gamma : Select Low, Medium, High b. Method : 2 Points <ul style="list-style-type: none"> <li>• Pattern: Inner, Outer</li> <li>• Red/Green/Blue Contrast, Red/Green/Blue Brightness</li> </ul>	c. Method : 20 Point IRE <ul style="list-style-type: none"> <li>• IRE (Institute of Radio Engineers) is the unit to display the size of the video signal and can be set among 0, 5, 10, 15 - 100 Plasma TV. You can adjust Red, Green or Blue according to each setting.</li> <li>• Red/Green/Blue: The adjustment range is -50 - +50.</li> <li>d. Apply to all inputs</li> </ul>

Setting	Description
<b>Color Management System</b>	<p>As the tool used by the experts to make adjustments by using the test patterns, this does not affect other colors but can be used to selectively adjust the 6 color areas (Red/Green/Blue/Cyan/Magenta/Yellow).</p> <p>Color difference may not be distinctive even when you make the adjustments for the general video.</p> <p>Adjusts Red/Green/Blue/Yellow/Cyan, Magenta.</p> <p>Red/Green/Blue/Yellow/Cyan/Magenta Color: The adjustment range is -30 - +30.</p> <p>Red/Green/Blue/Yellow/Cyan/Magenta Tint: The adjustment range is -30 - +30.</p> <p>This feature is disable in RGB-PC and HDMI-PC mode.</p>

## AUDIO Settings

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **AUDIO** and press **ENTER**.
- 3 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
  - To return to the previous level, press **BACK**.
- 4 When you are finished, press **EXIT**.



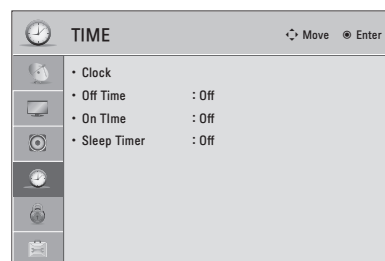
The available audio settings are described in the following.

Setting	Description
<b>Auto Volume</b>	Activates the Auto Volume feature to keep the volume level consistent whenever you change channels. The volume level may not be consistent due to different signal conditions of broadcasting stations.
<b>Clear Voice II</b>	Sets whether to enhance human voice clarity. You can adjust the level of clarity when you set this feature on.
<b>Balance</b>	Adjust balance between the left and right speakers according to your room environment.
<b>Sound Mode</b>	Selects one of the preset sound modes or customizes options in each mode.
<b>Mode</b>	
Standard	Select when you want standard-quality sound.
Music	Select when you listen to music.
Cinema	Select when you watch movies.
Sport	Select when you watch sports events.
Game	Select when you play games.
<div> <b>NOTE</b> <ul style="list-style-type: none"> <li>• If sound quality or volume is not at the level you want, it is recommended to use a separate home theater system or amplifier to cope with different user environments.</li> <li>• If the Clear Voice II feature is on, <b>Infinite Surround</b> will not be activated.</li> </ul> </div>	
<b>Option</b>	
Infinite Surround	Infinite Surround is a patented LG proprietary sound processing technology that strives immersive 5.1 surround sound with just two front speakers.
Treble	Controls the dominant sounds in the output. When you turn up the treble, it will increase the output to the higher frequency range.
Bass	Controls the softer sounds in the output. When you turn up the bass, it will increase the output to the lower frequency range.
Reset	Resets the sound mode to the default setting.


<b>Digital Audio Out</b>	This function is setting the Dolby digital/PCM to connect the audio outputs. If you select "Digital Audio Out - Auto" when Dolby digital is available, SPDIF (Sony Philips Digital InterFace) output will be Dolby Digital. If you select "Digital Audio Out - PCM" when Dolby digital is not available, SPDIF output will be PCM (Pulsecode modulation).		
	<b>Item</b>	<b>Audio Input</b>	<b>Digital Audio output</b>
	Auto	MPEG DD HE-AAC	PCM DD DD
	PCM	All	PCM
<b>TV Speaker</b>	Turns on the internal speaker of the TV when using an external Hi-Fi system. You can use the TV speaker as an audio output device even if there is no video input.		
<b>DTV Audio Setting</b>	When different audio types exist in an input signal, this function allows you to select the audio type you want.		

## TIME Settings

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **TIME** and press **ENTER**.
- 3 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
  - To return to the previous level, press **BACK**.
- 4 When you are finished, press **EXIT**.

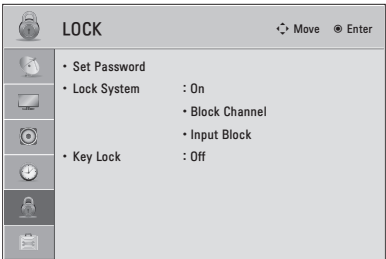


The available time settings are described in the following

Setting	Description
<b>Clock</b>	Sets the time, date, time zone, and daylight-saving time feature. The time will be set automatically according to a digital channel signal which includes time information provided by the broadcasting station. If not, set the time and date manually.
<b>Off Time/On Time</b>	<p>Sets the time to turn on or off the TV automatically. To use this function, you should set the current time and date in advance.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p> <b>NOTE</b></p> <ul style="list-style-type: none"> <li>If you do not press any button within 2 hours after the TV turns on by the On Time feature, the TV enters the Standby mode automatically.</li> <li>If you set both Off time and On time features to the same time, the Off time feature overrides the On time feature.</li> </ul> </div>
<b>Sleep Timer</b>	Sets the length of time until the TV to turns off. When you turn the TV off and turn it on again, the Sleep timer feature will be set to off.

# LOCK Settings

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **LOCK** and press **ENTER**.
- 3 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
  - To return to the previous level, press **BACK**.
- 4 When you are finished, press **EXIT**.

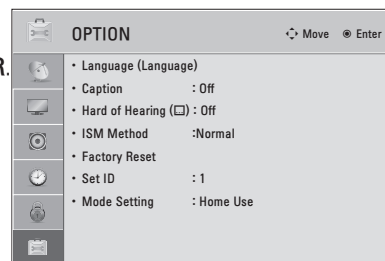


The available lock settings are described in the following.


Setting	Description
<b>Set Password</b>	Changes the 4-digit password. The default PIN is "0 0 0 0". If you forget your password, press "0-3-2-5" on the remote control.
<b>Lock System</b>	Activates or deactivates the lock system.
<b>Block Channel</b>	Blocks the channels that contain inappropriate contents for children by pressing the <b>Yellow</b> button. The Lock icon appears in front of the blocked channels. The channels can be selected but the screen blank and the audio is muted. To watch a locked channel, enter the password.
<b>Input Block</b>	Block the input sources.
<b>Key Lock</b>	Locks or unlocks the buttons on the TV.




## OPTION Settings

- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **OPTION** and press **ENTER**.
- 3 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
  - To return to the previous level, press **BACK**.
- 4 When you are finished, press **EXIT**.



The available general settings are described in the following.

Setting	Description			
Language	Selects a desired language.			
	Option			
	Menu Language	Selects a language for the display text.		
	Audio Language	Selects an audio language for your program. This feature operates only in the DTV mode. If audio data in a selected language is not broadcast, the default language audio will be played. <ul style="list-style-type: none"><li>• Audio Language OSD Information<ul style="list-style-type: none"><li>» NA: Not Available</li><li>» <b>MPEG</b>: MPEG Audio</li><li>» <b>Dolby</b>: Dolby Digital Audio</li><li>» <b>VI</b>: Audio for "Visual Impaired"</li><li>» <b>ABC</b>: Audio for "Hearing Impaired"</li><li>» <b>Dolby+</b>: Dolby Digital Plus Audio</li><li>» <b>HE-AAC</b>: HE-AAC Audio</li></ul></li></ul>		
	Subtitle Language	Use the Subtitle function when two or more subtitle languages are broadcast. If subtitle data in a selected language is not broadcast, the default language subtitle will be displayed. <ul style="list-style-type: none"><li>• Subtitle Language OSD Information<ul style="list-style-type: none"><li>» NA: Not Available</li><li>» <b>ABC</b>: Subtitle for "Hard of Hearing"</li></ul></li></ul> <div><div></div><div><b>NOTE</b><ul style="list-style-type: none"><li>• When the languages you selected as the primary for Audio Language and Subtitle Language and Text Language are not supported, you can select language in secondary category.</li><li>• The audio/subtitles can be displayed in a simpler form with 1 to 3 characters broadcast by the service provider.</li><li>• When you select supplementary Audio (Audio for "Visual/Hearing Impaired") the TV may output a part of the Main audio.</li></ul></div></div>		
Caption	Sets whether to display captions and customize your option in each mode.			
	Mode			
	Analog	<table><tr><td>CC 1-2 (Closed Captioning)</td><td rowspan="2">Displays the audio portion of a TV program as text on the TV screen. CC1 is the most common mode in use.</td></tr><tr><td>Text 1-2</td></tr></table>	CC 1-2 (Closed Captioning)	Displays the audio portion of a TV program as text on the TV screen. CC1 is the most common mode in use.
CC 1-2 (Closed Captioning)	Displays the audio portion of a TV program as text on the TV screen. CC1 is the most common mode in use.			
Text 1-2				
Hard of Hearing	This function use for the hearing impaired. If it is set to on, the subtitle is displayed by default.			

Setting	Description
ISM Method	Prevents image sticking or removes a ghost image. A frozen still picture displayed on the screen for prolonged periods can result in a ghost image.
	<b>Mode</b>
	Normal Sets it if image sticking is never a problem.
	Orbiter Avoids a ghost image on the screen. The image will move every 2 minutes to help prevent ghost images. However, it is best not to allow any fixed image to remain on the screen.
	Color Wash Removes a ghost image on the screen. The color block with the screen moved a little and the white pattern are alternately displayed. It is difficult to see the after image on all colors. Once it has been corrected it will not be visible in any color.
	White Wash Removes a ghost image on the screen. Use sparingly. Watch the TV normally for a while before using this feature to see if the ghost image disappears on its own.
 <b>NOTE</b> <ul style="list-style-type: none"> <li>An excessive ghosted image may be impossible to clear entirely with <b>White Wash</b>. To return to normal viewing, press the any button.</li> </ul>	
Factory Reset	Resets the TV to factory default and erases all stored channels. Customizes the TV settings to suit your preference. The initial setup screen will appear when you turn on the TV for the first time.
	 <b>NOTE</b> <ul style="list-style-type: none"> <li>When selecting "Lock System - On" in the LOCK menu, the message to enter the password appears.</li> <li>If you forget your password, press "0-3-2-5" on the remote control.</li> </ul>
	<b>Setting</b>
	Language Selects a desired language.
	Mode Setting Selects <b>Home Use</b> for the home environment. Selects <b>Store Demo</b> for the retail environment. Selects <b>Demo Mode</b> to set to show special features of the TV. You can cancel the demo mode by pressing any buttons except the Volume and Mute buttons.
	 <b>NOTE</b> <ul style="list-style-type: none"> <li>When selecting Store Demo, Demo Mode will be activated.</li> </ul>
	Auto Tuning Scans and saves available channels automatically.
Set ID	Adds an ID to the connected devices.
Mode Setting	Default selection is "Home Use". We recommend setting the TV to "Home Use" mode for the best picture in your home environment.
	<b>Option</b>
	Home Use Selects it for the home environment.
	Store Demo Selects it for the retail environment.
	Demo Mode Sets to show special features of the TV. You can cancel the demo mode by pressing any buttons except the Volume and Mute buttons.



## MAKING CONNECTIONS

Connect various external devices to the TV and switch input modes to select an external device. For more information of external device's connection, refer to the manual provided with each device.

Available external devices are: HD receivers, DVD players, VCRs, audio systems, USB storage devices, PC, gaming devices, and other external devices.



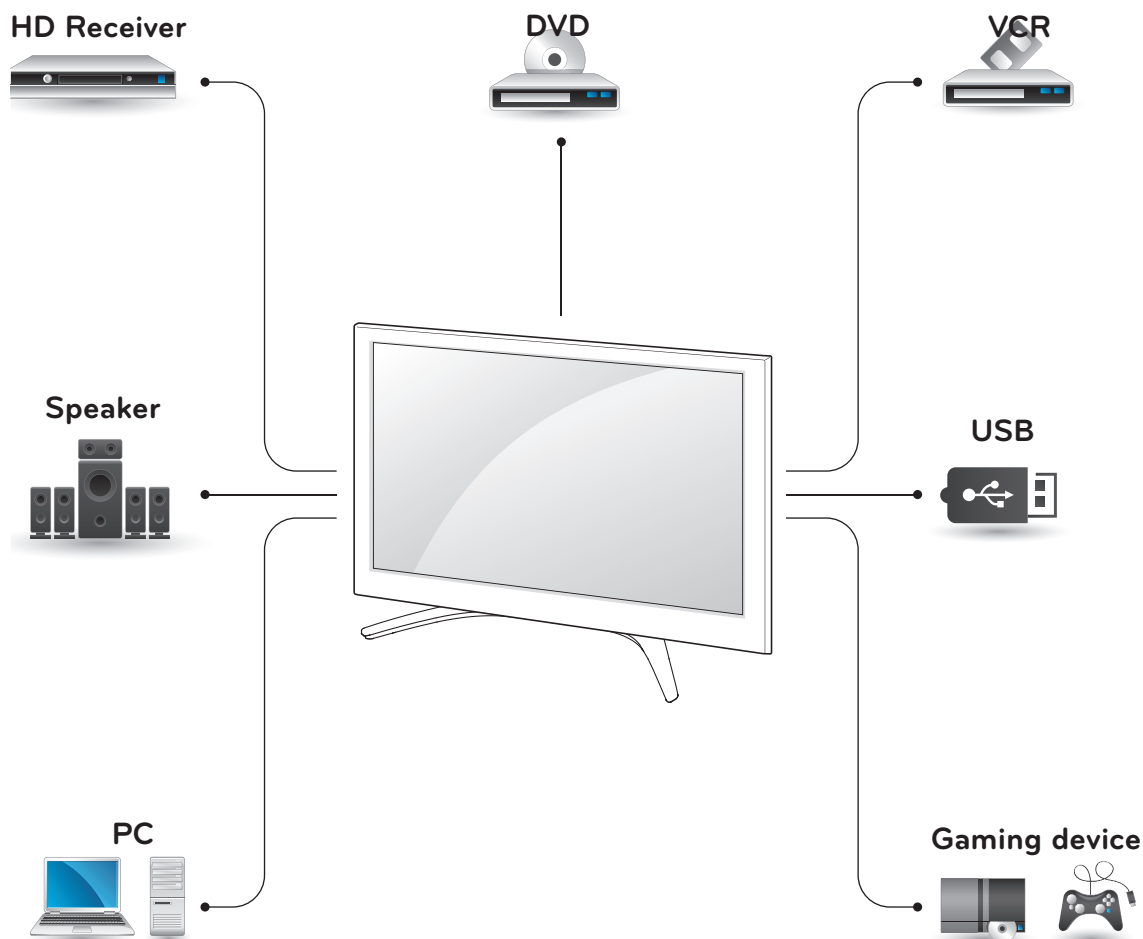
### NOTE

- If you record a TV program on a DVD recorder or VCR, make sure to connect the TV signal input cable to the TV through a DVD recorder or VCR. For more information of recording, refer to the manual provided with the connected device.
- The external device connection may differ from the model.
- Connect external devices to the TV regardless of the order of the TV port.

## Connection Overview

Connect various external devices to the ports on the TV back panel.

- 1 Find an external device you want to connect to your TV as shown on the following illustration.
- 2 Check the connection type of the external device.
- 3 Go to the appropriate illustration and check the connection details.



HDMI – See p.71

DVI – See p.71

Component – See p.71

Composite – See p.72

Digital – See p.74

RGB – See p.73

Memory storage – See p.74

Memory card reader – See p.74



### NOTE

- If you connect a gaming device to the TV, use the cable supplied with the gaming device.
- Refer to the external equipment's manual for operating instructions.

## Connecting to a HD receiver, DVD or VCR player

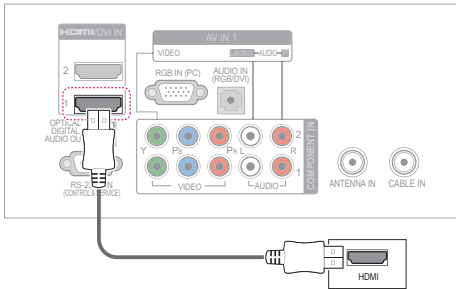
Connect a HD receiver, DVD or VCR player to the TV and select an appropriate input mode.

### HDMI Connection

Transmits the digital video and audio signals from an external device to the TV. Connect the external device and the TV with the HDMI cable as shown in the following illustration.

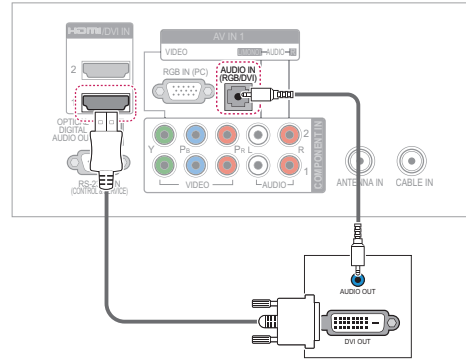
#### ! NOTE

- Use the latest High Speed HDMI™ Cable with CEC (Customer Electronics Control) function.
- High Speed HDMI™ Cables are tested to carry an HD signal up to 1080p and higher.



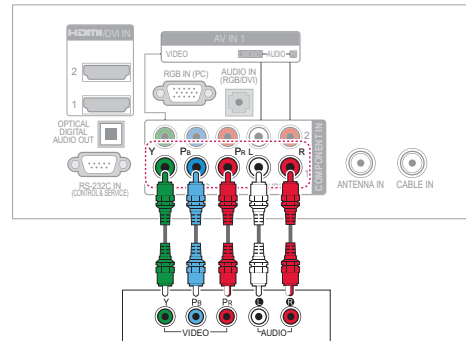
### DVI to HDMI Connection

Transmits the digital video signal from an external device to the TV. Connect the external device and the TV with the DVI-HDMI cable as shown in the following illustration. To transmit an audio signal, connect an audio cable.



### Component Connection

Transmits the analog video and audio signals from an external device to the TV. Connect the external device and the TV with the component cable as shown in the following illustration.



#### ! NOTE

- If cables are installed incorrectly, it could case the image to display in black and white or with distorted color. Check to ensure the cable are matched with the corresponding color connection.

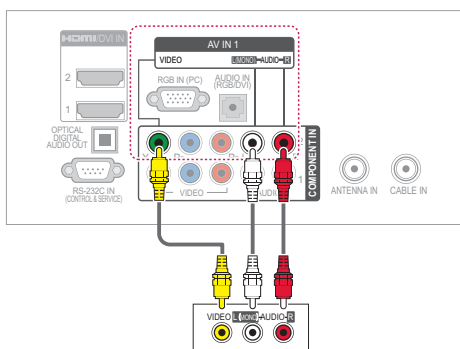
## Composite Connection

Transmits the analog video and audio signals from an external device to the TV. Connect the external device and the TV with the composite cable as shown in the following illustration.



### NOTE

- If you have a mono VCR, connect the audio cable from the VCR to the AUDIO L/MONO jack of the TV.



## Connecting to a PC

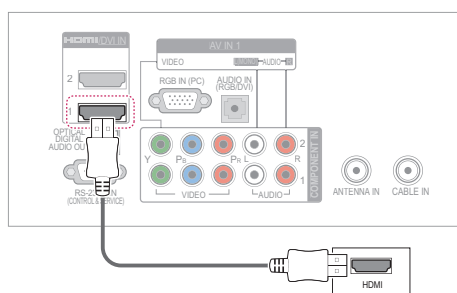


### NOTE

- It is recommended to use the TV set with the HDMI connection for the best image quality.

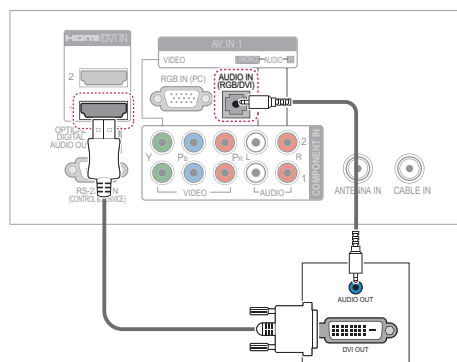
## HDMI Connection

Transmits the digital video and audio signals from your PC to the TV. Connect the PC and the TV with the HDMI cable as shown in the following illustration.



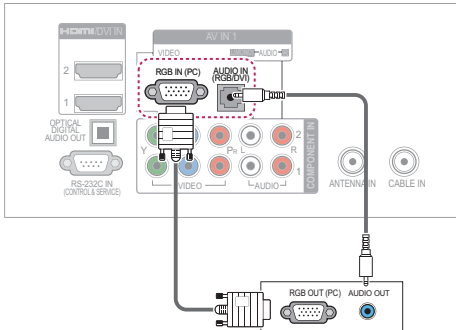
## DVI to HDMI Connection

Transmits the digital video signal from your PC to the TV. Connect the PC and the TV with the DVI-HDMI cable as shown in the following illustration. To transmit an audio signal, connect an audio cable.



## RGB Connection

Transmits the analog video signal from your PC to the TV. Connect the PC and the TV with the D-sub 15 pin signal cable as shown in the following illustrations. To transmit an audio signal, connect an audio cable.



### ! NOTE

- To get the best picture quality, adjust the PC graphics card to 1024x768.
- Depending on the graphics card, DOS mode may not work if a HDMI to DVI Cable is in use.
- In PC mode, there may be noise associated with the resolution, vertical pattern, contrast or brightness.
- If noise is present, change the PC output to another resolution, change the refresh rate to another rate or adjust the brightness and contrast on the PICTURE menu until the picture is clear.
- Avoid keeping a fixed image on the screen for a long period of time. The fixed image may become permanently imprinted on the screen.
- The synchronization input form for Horizontal and Vertical frequencies is separate.
- Depending on the graphics card, some resolution settings may not allow the image to be positioned on the screen properly.
- When selecting HDMI-PC, set the "Input Label - PC" in the **INPUT** menu.

## Connecting to an Audio System

Use an optional external audio system instead of the built-in speaker.

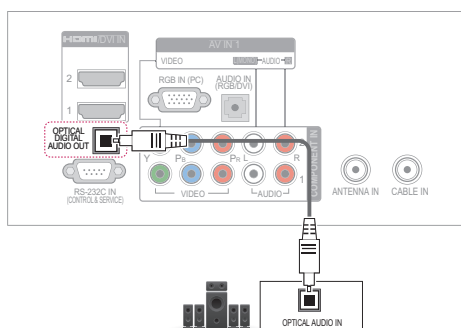


### NOTE

- If you use an optional external audio device instead of the built-in speaker, set the TV speaker feature to off (See p.63).

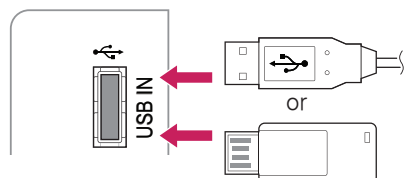
## Digital optical audio connection

Transmits the digital audio signal from the TV to an external device. Connect the external device and the TV with the optical audio cable as shown in the following illustration.



## Connecting to a USB

Connect a USB storage device such as a USB flash memory, external hard drive or a USB memory card reader to the TV and access the My media menu to use various multimedia files. See "Connecting USB storage devices" on p.48 and see "Browsing files" on p.49.



## SIMPLINK Connection

Use the TV remote control to play and control the AV device connected with the HDMI cable through HDMI-CEC. Your TV only works with the devices that support HDMI-CEC. But only devices with the **SIMPLINK** logo are fully supported.

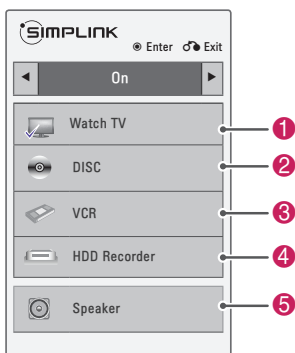
Connect one end of the HDMI cable to the HDMI/DVI IN or HDMI IN terminal on the rear of the TV and the other end to the SIMPLINK device.

### NOTE

- If the connected device does not support HDMI-CEC, the SIMPLINK feature is unavailable.
- To operate SIMPLINK, you should use an High Speed HDMI cable with the CEC (Consumer Electronics Control) function.
- SIMPLINK may not work properly if you a third-party device that has an HDMI-CEC function.

## Activating and Using the SIMPLINK menus

- 1 Press **SIMPLINK** to access the SIMPLINK menus.
- 2 Press the Navigation buttons to select to **On**.
- 3 Press the Navigation buttons to scroll to one of the devices and press **ENTER**.



No.	Description
①	Displays the previously viewed TV channel.
②	Plays discs. When multiple discs are available, the title of the disc appears at the bottom of the screen.
③	Controls the connected VCR.
④	HDD recordings playback: Controls the recording stored in HDD.
⑤	Audio out to home theater speaker or Audio out to TV: Changes the audio output between Home theater speaker and TV speaker.

- A check mark appears in front of the selected device.
- Available devices display in a bright color.
- Unavailable devices display in gray.

- 4 Control the selected AV device.
  - Direct Play: After connecting AV devices to the TV, you can directly control the devices and play media without additional settings.
  - Select AV device: Enables you to select one of the AV devices connected to the TV.
  - Disc playback: Control connected AV devices by pressing the Navigation buttons, **ENTER**, **▶**, **■**, **||**, **◀** and **▶▶**.
  - Power off all devices: When you power off the TV, all connected devices are turned off.
  - Switch audio-out: Offers an easy way to switch audio-out.
  - Sync Power on: When the equipment with SIMPLINK function connected HDMI terminal starts to play, The TV will automatically turn on.

### NOTE

- If you change the input source by pressing **INPUT**, the progressing function of the SIMPLINK device will stop.
- If you select a device that has the home theater feature, the sound output automatically switches to the home theater speaker and the TV speaker turns off.
- If a connected SIMPLINK home theater system does not play the audio from the TV, connect the DIGITAL AUDIO OUT terminal on the rear of the TV to the DIGITAL AUDIO IN terminal on the back of the SIMPLINK device with an optical cable.

## MAINTENANCE

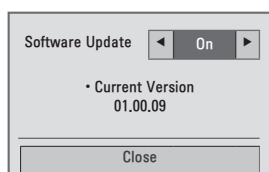
Update and clean your TV regularly to keep the best performance and to extend the product lifespan.

### Updating the TV Firmware

Download and install the latest firmware through DTV signal to enhance or change the product function, or add new features.

To check the current firmware version or update the firmware,

- 1 Press **Home** to access the main menu.
- 2 Press the **Red** button to scroll **Customer Support**.
- 3 Press the Navigation buttons to scroll to **Software Update** and press **ENTER**.  
The current firmware version displays.



OTA (Over-The-Air): When software update is on, the TV will automatically check for software updates. A pop-up window will appear on the screen when an update is available.

#### ! NOTE

- If you change the channel during the firmware update through OTA, the update is stopped.
- The process resumes when you go back to the original channel. The update continues even when the power is switched off using the remote control. The system operates normally once the update is complete.
- You can check the software update status in the Software Update menu or from the update information displayed under the channel banner.

- 4 When the update is complete, the TV will automatically restart in 5 seconds.

You may need to reset some **SETUP**, **PICTURE**, or **AUDIO** menus.

#### ! NOTE

- You cannot downgrade back to an older firmware version.
- The period of time for the firmware update may be different depending on the firmware size and DTV signal strength.



## Cleaning Your TV



### CAUTION

- Make sure to turn the power off and disconnect the power cord and all other cables first.
- When the TV is left unattended and unused for a long time, disconnect the power cord from the wall outlet to prevent possible damage from lightning or power surges.

### Screen and frame

To remove dust or light dirt, wipe the surface with a dry, clean, and soft cloth.

To remove major dirt, wipe the surface with a soft cloth dampened in clean water or a diluted mild detergent. Then wipe immediately with a dry cloth.



### CAUTION

- Do not push, rub, or hit the surface with your fingernail or a sharp object, as this may result in scratches on the screen and image distortions.
- Do not use any chemicals, such as waxes, benzene, alcohol, thinners, insecticides, air fresheners, lubricants, as these may damage the screen's finish and cause discoloration.

### Cabinet and stand

To remove dust or light dirt, wipe the cabinet with a dry, clean, and soft cloth.

To remove major dirt, wipe the cabinet with a soft cloth dampened in a clean water or water containing a small amount of mild detergent. Then wipe immediately with a dry cloth.



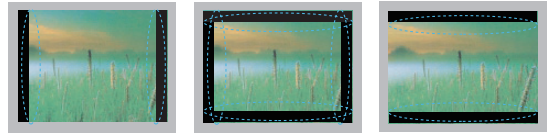
### CAUTION

- Do not spray liquid onto the surface. If water enters the TV, it may result in fire, electric shock, or malfunction.
- Do not use any chemicals as this may deteriorate the surface.

### Power cord

Remove the accumulated dust or dirt on the power cord regularly.

## Preventing "Image burn" or "Burn-in" on your TV screen



- If a fixed image displays on the TV screen for a long period of time, it will be imprinted and become a permanent disfigurement on the screen. This is "image burn" or "burn-in" and not covered by the warranty.
- If the aspect ratio of the TV is set to 4:3 for a long period of time, image burn may occur on the letterboxed area of the screen.
- Avoid displaying a fixed image on the TV screen for a long period of time (2 or more hours for LCD, 1 or more hours for the Plasma TV) to prevent image burn.

# TROUBLESHOOTING

## General

Problem	Resolution
Cannot control the TV with the remote control.	<ul style="list-style-type: none"> <li>• Check the remote control sensor on the product and try again.</li> <li>• Check if there is any obstacle between the product and the remote control.</li> <li>• Check if the batteries are still working and properly installed (+ to +, - to -).</li> <li>• Check if the appropriate input mode such as TV or VCR is set for using the remote control.</li> </ul>
No image display and no sound is produced.	<ul style="list-style-type: none"> <li>• Check if the product is turned on.</li> <li>• Check if the power cord is connected to a wall outlet.</li> <li>• Check if there is a problem in the wall outlet by connecting other products.</li> </ul>
Image appears slowly when the TV turns on.	<ul style="list-style-type: none"> <li>• The image is muted during the product startup process. This is normal. If the image does not appear in a few minutes, unplug the TV for 30 seconds and try again. If the image still does not appear, contact the authorized service center in your local area.</li> </ul>
Cannot connect external devices.	<ul style="list-style-type: none"> <li>• Refer to the "Connection Overview" and connect an external device.</li> </ul>
The TV turns off suddenly.	<ul style="list-style-type: none"> <li>• Check the power control settings. The power supply may be interrupted.</li> <li>• Check if the Auto sleep feature is activated in the Time settings. Refer to the "Sleep Timer".</li> <li>• If there is no signal while the TV is on, the TV will turn off automatically after 15 minutes of inactivity.</li> </ul>

## Audio

Problem	Resolution
No sound is produced while images are displaying.	<ul style="list-style-type: none"> <li>• Press <b>VOL +</b> or <b>-</b> button.</li> <li>• Check if the sound is muted by pressing <b>MUTE</b>.</li> <li>• Scroll to other channels. There may a problem with the broadcast.</li> <li>• Check if the TV Speaker feature is activated in the menu option.</li> </ul>
No output from one of the speakers	<ul style="list-style-type: none"> <li>• Adjust Balance in the menu option.</li> </ul>
Unusual sound from inside the TV is produced.	<ul style="list-style-type: none"> <li>• A change in ambient humidity or temperature may result in an unusual noise when the product turns on or off. There is no problem with your product.</li> </ul>



## Video

Problem	Resolution
An image displays in black and white or the color quality is poor.	<ul style="list-style-type: none"> <li>Adjust the color setting in the menu option.</li> <li>Keep a sufficient distance between this product and other electronic products.</li> <li>Scroll to other channels. There may a problem with the broadcast.</li> </ul>
Horizontal or vertical bars appears or images blur	<ul style="list-style-type: none"> <li>Check if there are local interferences such as an electrical appliance or power tool.</li> </ul>
Lines or streaks appear on images	<ul style="list-style-type: none"> <li>Check the antenna or aim the antenna to the proper direction.</li> </ul>
Afterimages (ghosts) appear when the product turns off	<ul style="list-style-type: none"> <li>Pixels may have been damaged from a fixed image displayed for a long time (image burn). Use a screen saver to prevent the pixel damage on the screen.</li> </ul>
The power is on but the screen appears extremely dark.	<ul style="list-style-type: none"> <li>Adjust the brightness and contrast in the menu option.</li> </ul>
"No Signal" appears on the screen.	<ul style="list-style-type: none"> <li>Check if the signal cable is connected between the TV and products properly.</li> <li>Check the selected input source by pressing INPUT.</li> </ul>
The display offset is wrong.	<ul style="list-style-type: none"> <li>Adjust the position setting in the Picture menu.</li> <li>Check if the video card resolution and frequency are supported by the product. If the frequency is out of range, set to the recommended resolution using the display settings on the external device.</li> </ul>
Thin lines appear in the background of the screen.	<ul style="list-style-type: none"> <li>Check the video cable connections.</li> </ul>
Horizontal noises appear or characters blur.	<ul style="list-style-type: none"> <li>Adjust the Phase setting in the menu option. Refer to the "SCREEN".</li> </ul>
The reception on some channels is poor	<ul style="list-style-type: none"> <li>Scroll to other channels. There may a problem with the broadcast.</li> <li>The station signal may be weak. Aim the antenna to the proper direction.</li> <li>Check if there is local interferences such as an electrical appliance or power tool.</li> </ul>

## Movie

Problem	Resolution
The file does not appear on the Movie List.	<ul style="list-style-type: none"> <li>Check whether the extension is supported.</li> </ul>
Message is displayed saying "This file is invalid" or the audio is working normally but the video is not working normally.	<ul style="list-style-type: none"> <li>Check whether the file is playing normally on a PC. (Check whether the file is damaged.)</li> <li>Check whether the resolution is supported.</li> <li>Check whether the video/audio codec is supported.</li> <li>Check whether the frame rate is supported.</li> </ul>
Message is displayed saying "Unsupported Audio" or the video is working normally but the audio is not working normally.	<ul style="list-style-type: none"> <li>Check whether the file is playing normally on a PC. (Check whether the file is damaged.)</li> <li>Check whether the audio codec is supported.</li> <li>Check whether the bit rate is supported.</li> <li>Check whether the sample rate is supported.</li> </ul>
Subtitle is not working.	<ul style="list-style-type: none"> <li>Check whether the file is playing normally on a PC. (Check whether the file is damaged.)</li> <li>Check whether the video file and subtitle file name are the same.</li> <li>Check whether the video file and subtitle file are located in the same folder.</li> <li>Check whether the subtitle file is supported.</li> <li>Check whether the language is supported. (When you open the subtitle file in Memo Pad, you can check the language of the subtitle file.)</li> </ul>

## Pentouch

Problem	Resolution
The touch pen does not work.	<ul style="list-style-type: none"> <li>• Check that you used the remote control to enter Pentouch mode.</li> <li>• Check that the Pentouch dongle is connected to the computer and the red LED is on.</li> <li>• Press the  / <b>Home</b> button on the touch pen to check that it is powered on.</li> <li>• Check that the touch pen is paired for use. (The touch pen is correctly paired if the red LED is on once when you press the  / <b>Home</b> button on the touch pen.)</li> <li>• Set the computer screen to display only on the TV.</li> </ul>
The TV screen doesn't look normal when using Pentouch.	<ul style="list-style-type: none"> <li>• Check that the computer is correctly connected to the TV.</li> <li>• Check that you are using the optimal resolution.</li> <li>• Set the aspect ratio on the TV to Just Scan.</li> </ul>
The touch pen is touched on wrong positions.	<ul style="list-style-type: none"> <li>• Set the computer screen to display only on the TV.</li> <li>• If the point you touch on the TV screen using the touch pen and the point indicated as touched on the computer screen do not match when the computer and the TV are connected by a PC signal (RGB) cable, use the TV remote control to select [Menu] → [Picture] → [Screen], then select [Auto Config.] to adjust the screen.</li> </ul>
The touch pen movement is not smooth.	<ul style="list-style-type: none"> <li>• Check whether the computer and the TV are too far from each other. Check whether there are too many obstructions between the computer and the TV.</li> <li>• Check whether many other applications are running on the computer. (Please avoid running other applications while using the Pentouch program.)</li> </ul>

# SPECIFICATIONS

Product specifications may be changed without prior notice due to upgrade of product functions.

Television System		Analog : NTSC-M, DTV : DVB-T
Program Coverage		VHF 2-13, UHF 14-69, CATV 1, 14-125, DTV 14-69
External Antenna Impedance		75 $\Omega$
Environment condition	Operating Temperature	0 - 40 °C
	Operating Humidity	Less than 80 %
	Storage Temperature	-20 - 60 °C
	Storage Humidity	Less than 85 %

MODELS		50PT490E (50PT490E-DA)
Dimensions (W x H x D)	With stand	1168.7 mm x 777.0 mm x 349.2 mm
	Without stand	1168.7 mm x 712.2 mm x 52.5 mm
Weight	With stand	29.4 kg
	Without stand	27.4 kg
Current Value / Power consumption		3.0 A / 300 W
Power requirement		AC100-240 V ~ 50/60 Hz

## RGB (PC), HDMI (PC) supported mode

Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
720x400	31.468	70.08
640x480	31.469	59.94
800x600	37.879	60.31
1024x768	48.363	60.00

## HDMI (DTV) supported mode

Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
720x480p	31.47	59.94
	31.50	60.00
720x576p	31.250	50.00
1280x720p	44.96	59.94
	45.00	60.00
	37.500	50.00
1920x1080i	33.72	59.94
	33.75	60.00
	28.125	50.00
1920x1080p	26.97	23.976
	27.00	24.00
	33.71	29.97
	33.75	30.00
	67.432	59.94
	67.50	60.00
	56.250	50.00

## Component port connecting information

Component ports on the TV	Y	P <sub>B</sub>	P <sub>R</sub>
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Video output ports on DVD player	Y	P <sub>B</sub>	P <sub>R</sub>
	Y	B-Y	R-Y
	Y	Cb	Cr
	Y	Pb	Pr

## Component supported mode

Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
720x480i	15.73	59.94
	15.73	60.00
720x480p	31.47	59.94
	31.50	60.00
720x576i	15.625	50.00
720x576p	31.250	50.00
1280x720p	44.96	59.94
	45.00	60.00
	37.500	50.00
1920x1080i	33.72	59.94
	33.75	60.00
	28.125	50.00
1920x1080p	26.97	23.976
	27.00	24.00
	33.71	29.97
	33.75	30.00
	67.432	59.94
	67.50	60.00
	56.250	50.00

## Video Supported Formats

File Extension name	Video Decoder	Audio Codec	Max Resolution
mpg, mpeg	MPEG1, MPEG2	MP2, MP3, Dolby Digital, LPCM	1920 x 1080 @ 30p (Only Motion JPEG 640x480@30p)
dat	MPEG1	MP2	
ts, trp, tp	MPEG2, H.264, AVS, VC1	MP2, MP3, Dolby Digital, AAC, HE-AAC	
vob	MPEG1, 2	MP2, MP3, Dolby Digital, LPCM	
mp4, mov	MPEG4, DivX 3.11, DivX 4.12, DivX 5.x, DivX 6, Xvid 1.00, Xvid 1.01, Xvid 1.02, Xvid 1.03, Xvid 1.10-beta1/2H.264	AAC, HE-AAC, MP3	
mkv	H.264, MPEG-1,2,4	MP2, MP3, Dolby Digital, AAC HE-AAC, LPCM	
divx, avi	MPEG2, MPEG4, DivX 3.11, DivX 4, DivX 5, DivX 6, Xvid 1.00, Xvid 1.01, Xvid 1.02, Xvid 1.03, Xvid 1.10-beta1/2H.264	MP2, MP3, Dolby Digital, LPCM, ADPCM, AAC, HE-AAC	
Motion JPEG (avi, mp4, mkv)	JPEG	LPCM, ADPCM	
asf, wmv	VC1	WMA	
flv	Sorenson H.263, H264	MP3, AAC	

# IR CODES

Code (Hexa)	Function	Note	Code (Hexa)	Function	Note
08	POWER	Remote control Button (Power On/Off)	39	SUBTITLE	Remote control Button
			AB	GUIDE	Remote control Button
45	Q.MENU	Remote control Button	F0	TV/RAD	Remote control Button
43	Home	Remote control Button	5B	EXIT	Remote control Button
0B	INPUT	Remote control Button	6B	TOUCH	Remote control Button
10 - 19	Number Key 0-9	Remote control Button	D6	TV	Discrete IR Code (TV Input Selection)
4C	- (Dash)/LIST	Remote control Button			
1A	Q.VIEW	Remote control Button	C4	POWER ON	Discrete IR Code (Only Power On)
9	MUTE/DELETE	Remote control Button			
2	VOL +	Remote control Button	C5	POWER OFF	Discrete IR Code (Only Power Off)
3	VOL -	Remote control Button			
0	CH ▲	Remote control Button	5A	AV1	Discrete IR Code (AV1 Input Selection)
1	CH ▼	Remote control Button			
1E	FAV/MARK	Remote control Button	D0	AV2	Discrete IR Code (AV2 Input Selection)
40	▲	Remote control Button			
41	▼	Remote control Button	BF	COMPONENT1	Discrete IR Code (Component1 Input Selection)
7	<	Remote control Button			
6	>	Remote control Button	D4	COMPONENT2	Discrete IR Code (Component2 Input Selection)
44	ENTER	Remote control Button			
28	BACK	Remote control Button	D5	RGB-PC	Discrete IR Code (RGB-PC Input Selection)
79	RATIO	Remote control Button			
95	ENERGY SAVING	Remote control Button	CE	HDMI1	Discrete IR Code (HDMI1 Input Selection)
7E	SIMPLINK	Remote control Button			
AA	INFO	Remote control Button	CC	HDMI2	Discrete IR Code (HDMI2 Input Selection)
30	AV MODE	Remote control Button			
72	RED	Remote control Button	E9	HDMI3	Discrete IR Code (HDMI3 Input Selection)
71	GREEN	Remote control Button			
63	YELLOW	Remote control Button	76	Ratio 4:3	Discrete IR Code (Only 4:3 Mode)
61	BLUE	Remote control Button			
B1	■	Remote control Button	77	Ratio 16:9	Discrete IR Code (Only 16:9 Mode)
B0	►	Remote control Button			
BA	■ or FREEZE	Remote control Button	AF	Ratio Zoom	Discrete IR Code (Only Zoom Mode)
8E	►►	Remote control Button			
8F	◄◄	Remote control Button			

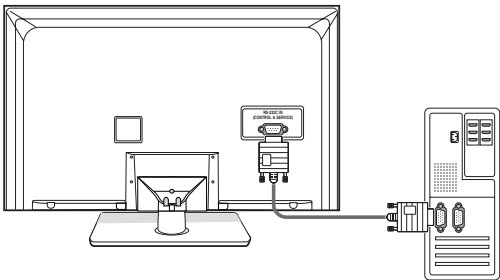


# EXTERNAL CONTROL DEVICE SETUP

## RS-232C Setup

Connect the RS-232C (serial port) input jack to an external control device (such as a computer or an A/V control system) to control the product's functions externally.

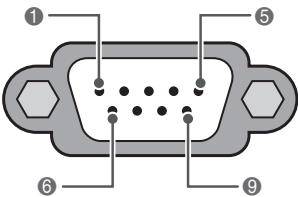
Connect the serial port of the control device to the RS-232C jack on the product back panel.



**NOTE**

- RS-232C on this unit is intended to be used with third party RS-232C control hardware and software. The instructions below are provided to help with programming software or to test functionality using telenet software. RS-232C connection cables are not supplied with the product.

## Type of connector; D-Sub 9-Pin Male



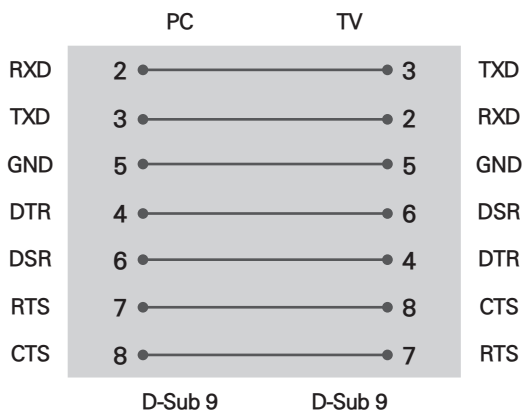
RS-232C IN  
(CONTROL & SERVICE)

No.	Pin name
1	No connection
2	RXD (Receive data)
3	TXD (Transmit data)
4	DTR (DTE side ready)
5	GND
6	DSR (DCE side ready)
7	RTS (Ready to send)
8	CTS (Clear to send)
9	No Connection

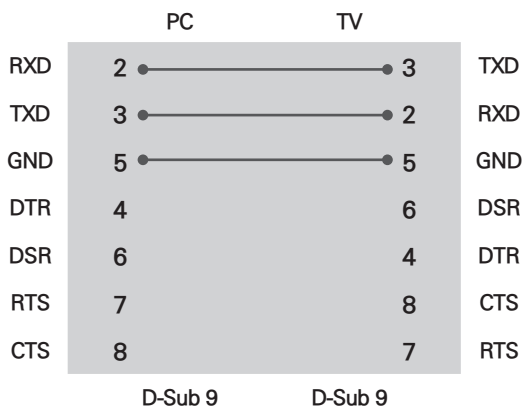
## RS-232C configurations

### 7-Wire Configuration

(Serial female-female NULL modem cable)

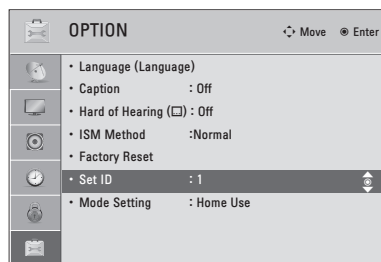


### 3-Wire Configurations (Not standard)



### Set ID

Set ID number.



- 1 Press **Home** to access the main menus.
- 2 Press the Navigation buttons to scroll to **OPTION** and press **ENTER**.
- 3 Press the Navigation buttons to scroll to **Set ID** and press **ENTER**.
- 4 Scroll left or right to select a set ID number and select **CLOSE**. The adjustment range is 1-99.
- 5 When you are finished, press **EXIT**.

\*Real data mapping  
 0 : Step 0  
 ⋮  
 A : Step 10 (SET ID 10)  
 ⋮  
 F : Step 15 (SET ID 15)  
 10 : Step 16 (SET ID 16)  
 ⋮  
 63 : Step 99 (SET ID 99)  
 64 : Step 100

## Communication Parameters

- Baud rate: 9600 bps (UART)
- Data length: 8 bits
- Parity : None
- Stop bit: 1 bit
- Communication code: ASCII code
- Use a crossed (reverse) cable.

## Command reference list

	COMMAND1	COMMAND2	DATA (Hexadecimal)		COMMAND1	COMMAND2	DATA (Hexadecimal)
01. Power	k	a	00 - 01	12. OSD Select	k	l	00 - 01
02. Input Select	x	b	(See p.89)	13. Remote Control Lock Mode	k	m	00 - 01
03. Aspect Ratio	k	c	(See p.89)	14. Treble	k	r	00 - 64
04. Screen Mute	k	d	00 - 01	15. Bass	k	s	00 - 64
05. Volume Mute	k	e	00 - 01	16. Balance	k	t	00 - 64
06. Volume Control	k	f	00 - 64	17. Color Temperature	x	u	00 - 64
07. Contrast	k	g	00 - 64	18. ISM Method	j	p	(See p.90)
08. Brightness	k	h	00 - 64	19. Energy Saving	j	q	(See p.90)
09. Color	k	i	00 - 64	20. Auto Configuration	j	u	(See p.90)
10. Tint	k	j	00 - 64	22. Channel Add/Del	m	b	00 - 01
11. Sharpness	k	k	00 - 64	23. Key	m	c	(See p.91)

	COMMAND1	COMMAND2	DATA00 (Hexadecimal)	DATA01 (Hexadecimal)	DATA02 (Hexadecimal)	DATA03 (Hexadecimal)	DATA04 (Hexadecimal)	DATA05 (Hexadecimal)
21. Channel Tuning	m	a	physical program high	major program low	major low	minor high	minor low	attribute

## Transmission / Receiving protocol

### Transmission

**[Command1][Command2][ ][Set ID][ ][Data][Cr]**

[Command 1] : First command to control the set.(j, k, m or x)

[Command 2] : Second command to control the set.

[Set ID] : You can adjust the set ID to choose desired set ID number in Option menu. Adjustment range is 1~ 99. When selecting Set ID '0', every connected the set is controlled. Set ID is indicated as decimal (1~ 99) on menu and as Hexa decimal (0x0~ 0x63) on transmission /receiving protocol.

[DATA] : To transmit the command data.

Transmit the 'FF' data to read status of command.

[Cr] : Carriage Return

ASCII code '0x0D'

[ ] : ASCII code 'space (0x20)'

\* In this model, set will not send the status during the standby mode.

### OK Acknowledgement

**[Command2][ ][Set ID][ ][OK][Data][x]**

The set transmits ACK (acknowledgement) based on this format when receiving normal data. At this time, if the data is data read mode, it indicates present status data. If the data is data write mode, it returns the data of the PC computer.

\* In this model, set will not send the status during the standby mode.

\* Data Format

[Command 2] : Use as command.

[Set ID] : Use the small character, if set ID is 10, it will send the '0', 'a'.

[DATA] : Use the small character, if data is 0 x ab, it will send the 'a', 'b'.

[OK] : Use the large character.

### Error Acknowledgement

**[Command2][ ][Set ID][ ][NG][Data][x]**

The set transmits ACK (acknowledgement) based on this format when receiving abnormal data from non-viable functions or communication errors.

Data1: Illegal Code

Data2: Not supported function

Data3: Wait more time

\* In this model, set will not send the status during the standby mode.

\* Data Format

[Command 2] : Use as command.

[Set ID] : Use the small character, if set ID is 10, it will send the '0', 'a'.

[DATA] : Use the small character, if data is 0 x ab, it will send the 'a', 'b'.

[NG] : Use the large character

**01. Power (Command: k a)**

To control Power On/Off of the set.

Transmission [k][a][ ][Set ID][ ][Data][Cr]

Data 00: Power Off      Data 01: Power On

Acknowledgement [a][ ][Set ID][ ][OK/NG][Data][x]

- \* In a like manner, if other functions transmit 'FF' data based on this format, Acknowledgement data feedback presents status about each function.
- \* Note: In this model, set will send the Acknowledge after power on processing completion.  
There might be a time delay between command and acknowledge.

**02. Input Select (Command: x b)**

To select input source for set.

Transmission [x][b][ ][Set ID][ ][Data][Cr]

Data 00: DTV (Antenna)

Data 10: Analog (Antenna)      Data 11: Analog (Cable)

Data 20: AV1      Data 21: AV2

Data 40: Component1      Data 41: Component2

Data 60: RGB-PC      Data 90: HDMI1

Data 91: HDMI2      Data 92: HDMI3

Acknowledgement [b][ ][Set ID][ ][OK/NG][Data][x]

- \* Use the feature depending on your model.

**03. Aspect Ratio (Command: k c)**

To adjust the screen format.

Transmission [k][c][ ][Set ID][ ][Data][Cr]

Data 01: 4:3      Data 09: Just Scan

Data 02: 16:9      Data 10: Cinema Zoom 1

Data 04: Zoom      :

Data 06: Original      Data 1F: Cinema Zoom16

Data 07: 14:9      Data 0B: Full Wide

Acknowledgement [c][ ][Set ID][ ][OK/NG][Data][x]

**04. Screen Mute (Command: k d)**

To select screen mute on/off.

Transmission [k][d][ ][Set ID][ ][Data][Cr]

Data 00: Screen mute off (Picture on), Video-out Mute off

Data 01: Screen mute on (Picture off)

Data 10: Video-out Mute on

Acknowledgement [d][ ][Set ID][ ][OK/NG][Data][x]

- \* In case of Video-out Mute on only, TV will display On Screen Display (OSD). But, in case of screen mute on, TV will not display On Screen Display (OSD).

**05. Volume Mute (Command: k e)**

To control volume mute on/off.

You can also adjust mute using the MUTE button on remote control.

Transmission [k][e][ ][Set ID][ ][Data][Cr]

Data 00: Volume mute on (Volume off)

Data 01: Volume mute off (Volume on)

Acknowledgement [e][ ][Set ID][ ][OK/NG][Data][x]

**06. Volume Control (Command: k f)**

To adjust volume.

You can also adjust volume with the volume buttons on remote control.

Transmission [k][f][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (\*transmit by Hexadecimal code)

\*Refer to "Real data mapping".

Acknowledgement [f][ ][Set ID][ ][OK/NG][Data][x]

**07. Contrast (Command: k g)**

To adjust screen contrast.

You can also adjust contrast in the PICTURE menu.

Transmission [k][g][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (\*transmit by Hexadecimal code)

\*Refer to "Real data mapping".

Acknowledgement [g][ ][Set ID][ ][OK/NG][Data][x]

**08. Brightness (Command: k h)**

To adjust screen brightness.

You can also adjust brightness in the PICTURE menu.

Transmission [k][h][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (\*transmit by Hexadecimal code)

\*Refer to "Real data mapping".

Acknowledgement [h][ ][Set ID][ ][OK/NG][Data][x]

**09. Color (Command: k i)**

To adjust screen color.

You can also adjust color in the PICTURE menu.

Transmission [k][i][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (\*transmit by Hexadecimal code)

\*Refer to "Real data mapping".

Acknowledgement [i][ ][Set ID][ ][OK/NG][Data][x]

**10. Tint (Command: k j)**

To adjust screen tint.

You can also adjust tint in the PICTURE menu.

Transmission [k][j][ ][Set ID][ ][Data][Cr]

Data Red: 00 ~ Green: 64 (\*transmit by Hexadecimal code)

\*Refer to "Real data mapping".

Acknowledgement [j][ ][Set ID][ ][OK/NG][Data][x]

**11. Sharpness (Command: k k)**

To adjust screen sharpness.

You can also adjust sharpness in the PICTURE menu.

Transmission [k][k][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (\*transmit by Hexadecimal code)

\*Refer to "Real data mapping".

Acknowledgement [k][ ][Set ID][ ][OK/NG][Data][x]

**12. OSD Select (Command: k l)**

To select OSD (On Screen Display) on/off.

Transmission [k][l][ ][Set ID][ ][Data][Cr]

Data 00: OSD off                      Data 01: OSD on

Acknowledgement [l][ ][Set ID][ ][OK/NG][Data][x]

**13. Remote Control Lock Mode (Command: k m)**

To lock the remote control and the front panel controls on the set.

Transmission [k][m][ ][Set ID][ ][Data][Cr]

Data 00: Lock off                      Data 01: Lock on

Acknowledgement [m][ ][Set ID][ ][OK/NG][Data][x]

If you're not using the remote control and front panel controls on the Monitor set, use this mode. When main power is on/off, remote control lock is released. If Key Lock is on in the standby mode, TV will not turn on by POWER button of remote control and on the TV.

**14. Treble (Command: k r)**

To adjust treble.

You can also adjust treble in the AUDIO menu.

Transmission [k][r][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (\*transmit by Hexadecimal code)

\*Refer to "Real data mapping".

Acknowledgement [r][ ][Set ID][ ][OK/NG][Data][x]

**15. Bass (Command: k s)**

To adjust bass.

You can also adjust bass in the AUDIO menu.

Transmission [k][s][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (\*transmit by Hexadecimal code)

\*Refer to "Real data mapping".

Acknowledgement [s][ ][Set ID][ ][OK/NG][Data][x]

**16. Balance (Command: k t)**

To adjust balance.

You can also adjust balance in the AUDIO menu.

Transmission [k][t][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (\*transmit by Hexadecimal code)

\*Refer to "Real data mapping".

Acknowledgement [t][ ][Set ID][ ][OK/NG][Data][x]

**17. Color Temperature (Command: x u)**

To adjust color temperature.

You can also adjust color temperature in the PICTURE menu.

Transmission [x][u][ ][Set ID][ ][Data][Cr]

Data Min: 00 ~ Max: 64 (\*transmit by Hexadecimal code)

\*Refer to "Real data mapping".

Acknowledgement [u][ ][Set ID][ ][OK/NG][Data][x]

**18. ISM Method (Command: j p)**

To avoid having a fixed image remain on screen.

Transmission [j][p][ ][Set ID][ ][Data][Cr]

Data 02: Orbiter

04: White Wash

08: Normal

20: Color Wash

Acknowledgement [p][ ][Set ID][ ][OK/NG][Data][x]

**19. Energy Saving (Command: j q)**

To control the energy saving function.

Transmission [j][q][ ][Set ID][ ][Data][Cr]

Data 00: off

01: Minimum

02: Medium

03: Maximum

04: Auto/Intelligent sensor (depending on model)

05: Screen off

Acknowledgement [q][ ][Set ID][ ][OK/NG][Data][x]

**20. Auto Configuration (Command: j u)**

To adjust picture position and minimize image shaking automatically. Auto configuration only works in RGB-PC mode.

Transmission [j][u][ ][Set ID][ ][Data][Cr]

Data 01: To set

Acknowledgement [u][ ][Set ID][ ][OK/NG][Data][x]

**21. Channel Tuning (Command: m a)**

To tune channel to following physical number.

Transmission [m][a][ ][Set ID][ ][Data00][ ][Data01][ ][Data02][Cr]

Data 00: High channel data

Data 01: Low channel data

ex.

No.47 → 00 2F (2FH)

No.394 → 01 8A (18AH)

DTV No.0 → Don't care

Data 02:

0x00: Analog Main

0x10: DTV Main

0x20: Radio

0x80: CATV Main

Channel data range

Analog air: Min 02 - Max 45 (2 - 69)

Analog cable: Min 01 - Max 7D (1 - 125)

Digital: Min 01 - Max 3E7 (1 - 999)

Acknowledgement [a][ ][Set ID][ ][OK/NG][Data][x]

Digital: Min 00 - Max 7DH

**22. Channel Add/Del (Command: m b)**

To add and delete the channels.

Transmission [m][b][ ][Set ID][ ][Data][Cr]

Data 00: Channel Delete Data 01: Channel Add

Acknowledgement [b][ ][Set ID][ ][OK/NG][Data][x]

**23. Key (Command: m c)**

To send IR remote key code.

Transmission [m][c][ ][Set ID][ ][Data][Cr]

Acknowledgement [c][ ][Set ID][ ][OK/NG][Data][x]

When TV is in the standby mode, TV will turn on by POWER button of remote control only.

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